

SERVICE
MANUAL

2215BL

mārāntz

model 2215BL

Stereophonic Receiver

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INTRODUCTION

This service manual was prepared for use by Authorized Warranty Stations and contains service information for Marantz Model 2215BL Stereophonic Receiver.

Servicing information and voltage data included in this manual are intended for use by the knowledgeable and experienced technician only. All instructions should be read carefully. No attempt should be made to proceed without a good understanding of the operation in the receiver.

The parts list furnishes information by which replacement part may be ordered from the Marantz Company. A simple description is included for part which can usually be obtained through local suppliers.

1. P. W. Board

As can be seen from the circuit diagram, the chassis of Model 2215BL consists of the following units. Each unit mounted on a printed circuit board is described within the square enclosed by a bold dotted line on the circuit diagram.

1. FM Tuner	mounted on P. W. Board P100
2. AM Tuner	mounted on P. W. Board P200
3. Phono Amplifier	mounted on P. W. Board P400
4. Power Amplifier	mounted on P. W. Board P700
5. Power Supply	mounted on P. W. Board P800
6. Dial Lamp	mounted on P. W. Board PZ01
7. Monitor, Switch	mounted on P. W. Board PT01
8. Muting, Switch	mounted on P. W. Board PH01
9. Tone Amplifier	mounted on P. W. Board PE01

2. Test Equipment Required for Servicing

Table 1 lists the test equipment required for servicing the Model 2215BL Receiver.

Item	Manufacturer and Model No.	Use
AM Signal Generator		Signal source for AM alignment.
Test Loop		Used with AM Signal generator.
FM Signal Generator	Less than 0.3% distortion	Signal source for FM alignment.
Stereo Modulator	Less than 0.3% distortion	Stereo separation alignment and trouble shooting.
Frequency Counter		MPX oscillator adjustment (VCO).
Audio Oscillator	Weston Model CVO-100P, less than 0.02% residual distortion is required.	Sinewave and squarewave signal source.
Oscilloscope	High sensitivity with DC horizontal and vertical amplifiers.	Waveform analysis and Trouble Shooting, and ASO alignment.
VTVM	With AC, DC, RF range	Voltage measurements.
Circuit Tester		Trouble Shooting.
AC Wattmeter	Simpson, Model 390	Monitors primary power to Amplifier.
AC Ammeter	Commercial Grade (1-10A)	Monitors amplifier output under short circuit condition.
Line Voltmeter	Commercial Grade (0-150V AC)	Monitors potential of primary power to amplifier.
Variable Autotransformer (0-140V AC, 10 amps.)	Powerstat, Model 116B	Adjusts level of primary power to amplifier.
Shorting Plug	Use phono plug with 600 ohm across center pin and shell.	Shorts amplifier input to eliminate noise pickup.
Output Load (8 ohms, 0.5%, 100W)	Commercial Grade	Provides 8-ohm load for amplifier output termination.
Output Load (4 ohms, 0.5%, 100W)	Commercial Grade	Provides 4-ohm load for amplifier output termination.

Table 1. Test Equipment Required for Servicing

3. AM Alignment Procedure

3.1 AM (LW, MW) IF Alignment

1. Connect a sweep generator to the J206 and an alignment scope to J210.
2. Rotate each core of IF transformer L205 and L206 for maximum height and flat top symmetrical response.

3.2 AM Frequency Range and Tracking Alignment

3.2.1 MW Frequency Range and Tracking Alignment

1. Set AM signal generator to 525 kHz. Turn the tuning capacitor fully closed (place the tuning pointer at the low end) and adjust the oscillator coil L203 for maximum audio output.
2. Set the signal generator to 1650 kHz. Place the tuning pointer in the high frequency end and adjust the oscillator trimmer on the oscillator tuning capacitor C210 for maximum audio output.
3. Repeat the step 1 and 2 until no further adjustment is necessary.
4. Set the generator 600 kHz and tune the receiver to the same frequency and adjust a slug core of AM ferrite antenna for maximum output.
5. Set the generator to 1400 kHz and tune the receiver to the same frequency and adjust the trimming capacitor of Antenna C201 for maximum output.
6. Repeat the step 4 and 5 until no further adjustment is necessary.

Note: During tracking alignment reduce the signal generator output as necessary to avoid AGC action.

3.2.2 LW Frequency Range and Tracking Alignment

1. Set AM signal generator to 525 kHz. Turn the tuning capacitor fully closed (place the tuning pointer at the low end) and adjust the oscillator coil L204 for maximum audio output.
2. Set the signal generator to 380 kHz. Place the tuning pointer in the high frequency end and adjust the oscillator trimmer C212 for maximum audio output.
3. Repeat steps 1 and 2 until no further adjustment is necessary.
4. Set the generator to 170 kHz, tune the receiver to the same frequency and adjust a slug core of LW ferrite rod antenna for maximum output.
5. Set the generator to 350 kHz and tune the receiver to the same frequency and adjust trimming capacitor of antenna C202 for maximum output.
6. Repeat the steps 4 and 5 until no further adjustment is necessary.

4. FM Alignment Procedure

1. Connect an FM signal generator to the FM antenna terminals and a oscilloscope and an audio distortion analyzer to the tape output jacks on the rear panel.
2. Set the FM SG to 87.5 MHz and provide about 3 to 5 μ V. Place the tuning pointer at the low frequency end by rotating the tuning knob and adjust the core of oscillator coil L103 to obtain maximum audio output.
3. Set the FM SG to 108.5 MHz and provide about 3 to 5 μ V output. Rotate the tuning knob and place the tuning pointer at the high frequency end and adjust the trimming capacitor CF-3 for maximum output.
4. Repeat the steps 2 and 3 until no further adjustment is necessary.
5. Set the FM SG to 90 MHz and tune the receiver to the same frequency. Decrease signal generator output until the audio output level decreases with the decreasing generator output. Adjust the antenna coil L101, RF coil L102 and IF transformer L105 for minimum audio distortion.
6. Set the FM SG to 106 MHz and tune the receiver to the same frequency. Adjust the trimming capacitor CF-1, CF-2 for minimum distortion.
7. Repeat the steps 5 and 6 until no further adjustment is necessary.
8. Connect a DC VTVM with ± 0.5 volt range selected to the test point E (J116) and adjust the secondary core (upper) of discriminator transformer L106 so that no voltage reading is obtained on the VTVM at no signal.

Next set the FM SG to 98 MHz and increase the output level to 1 k μ V, then tune the receiver to the same frequency so that no deflection is obtained.

Adjust primary core (bottom) of L106 for minimum distortion, and adjust the L107 for the maximum reading on the VTVM connected to the J114.

5. STEREO Separation Alignment

1. Set the FM SG to provide 1 k μ V at 98 MHz.
Tune the receiver to the same frequency perfectly.

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Audio Oscillator	Weston Model CVO-100P, less than 0.02% residual distortion is required.	Sinewave and squarewave signal source.
Oscilloscope	High sensitivity with DC horizontal and vertical amplifiers.	Waveform analysis and Trouble Shooting, and ASO alignment.
VTVM	With AC, DC, RF range	Voltage measurements.
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3. Repeat the step 1 and 2 until no further adjustment is necessary.
4. Set the generator 600 kHz and tune the receiver to the same frequency and adjust a slug core of AM ferrite antenna for maximum output.
5. Set the generator to 1400 kHz and tune the receiver to the same frequency and adjust the trimming capacitor of Antenna C201 for maximum output.
6. Repeat the step 4 and 5 until no further adjustment is necessary.

Note: During tracking alignment reduce the signal generator output as necessary to avoid AGC action.

3.2.2 LW Frequency Range and Tracking Alignment

1. Set AM signal generator to 525 kHz. Turn the tuning capacitor fully closed (place the tuning pointer at the low end) and adjust the oscillator coil L204 for maximum audio output.
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4. Repeat the steps 2 and 3 until no further adjustment is necessary.
5. Set the FM SG to 90 MHz and tune the receiver to the same frequency. Decrease signal generator output until the audio output level decreases with the decreasing generator output. Adjust the antenna coil L101, RF coil L102 and IF transformer L105 for minimum audio distortion.
6. Set the FM SG to 106 MHz and tune the receiver to the same frequency. Adjust the trimming capacitor CF-1, CF-2 for minimum distortion.
7. Repeat the steps 5 and 6 until no further adjustment is necessary.
8. Connect a DC VTVM with ± 0.5 volt range selected to the test point E (J116) and adjust the secondary core (upper) of discriminator transformer L106 so that no voltage reading is obtained on the VTVM at no signal.

Next set the FM SG to 98 MHz and increase the output level to 1 k μ V, then tune the receiver to the same frequency so that no deflection is obtained.

Adjust primary core (bottom) of L106 for minimum distortion, and adjust the L107 for the maximum reading on the VTVM connected to the J114.

5. STEREO Separation Alignment

1. Set the FM SG to provide 1 k μ V at 98 MHz.
Tune the receiver to the same frequency perfectly.

2. Turn the FM SG modulation off (with the pilot signal turned off), connect a frequency counter to test point J120, and adjust R302 so that the frequency counter may precisely read 19 kHz.
3. Modulate the FM SG with stereo composite signal consisting of only subchannel signal (of course a pilot signal must be included).
4. Adjust the trimming resistor R301 for maximum and same separation in both channels.

6. Muting Circuit Alignment

1. Set the FM SG output to provide 25 μ V (IHF) at 98 MHz and tune the receiver to the same frequency.
Adjust the trimming resistor R161 for the threshold level of 25 μ V (during this adjustment turn the MUTING pushswitch "on").

7. Audio Adjustment

1. Connect a VTVM across the resistor R735 and adjust the trimming resistor R727 until the VTVM reads 10.0 mV DC.
For the other channel connect the VTVM across the R736 and adjust the R728 for the same reading.

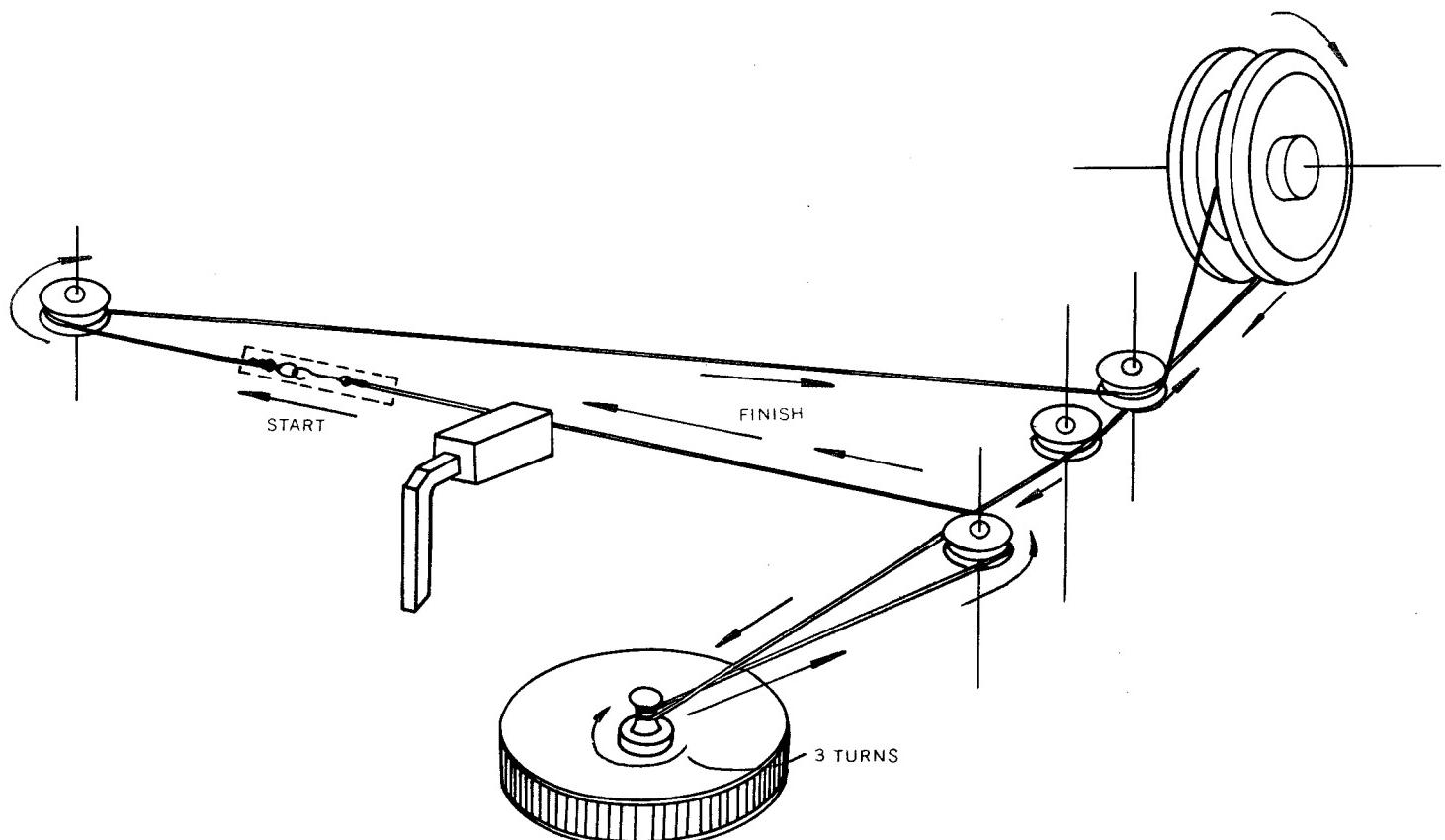


Fig. 1 Dial Stringing

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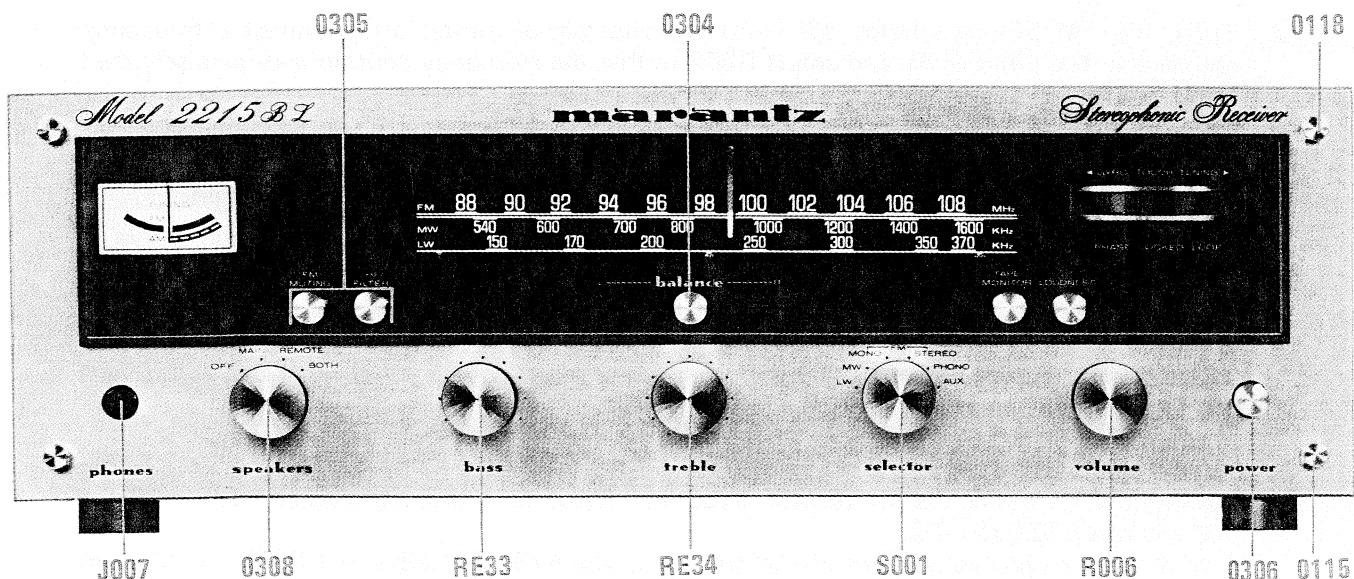


Fig. 2 Front Panel Adjustment and Component Locations

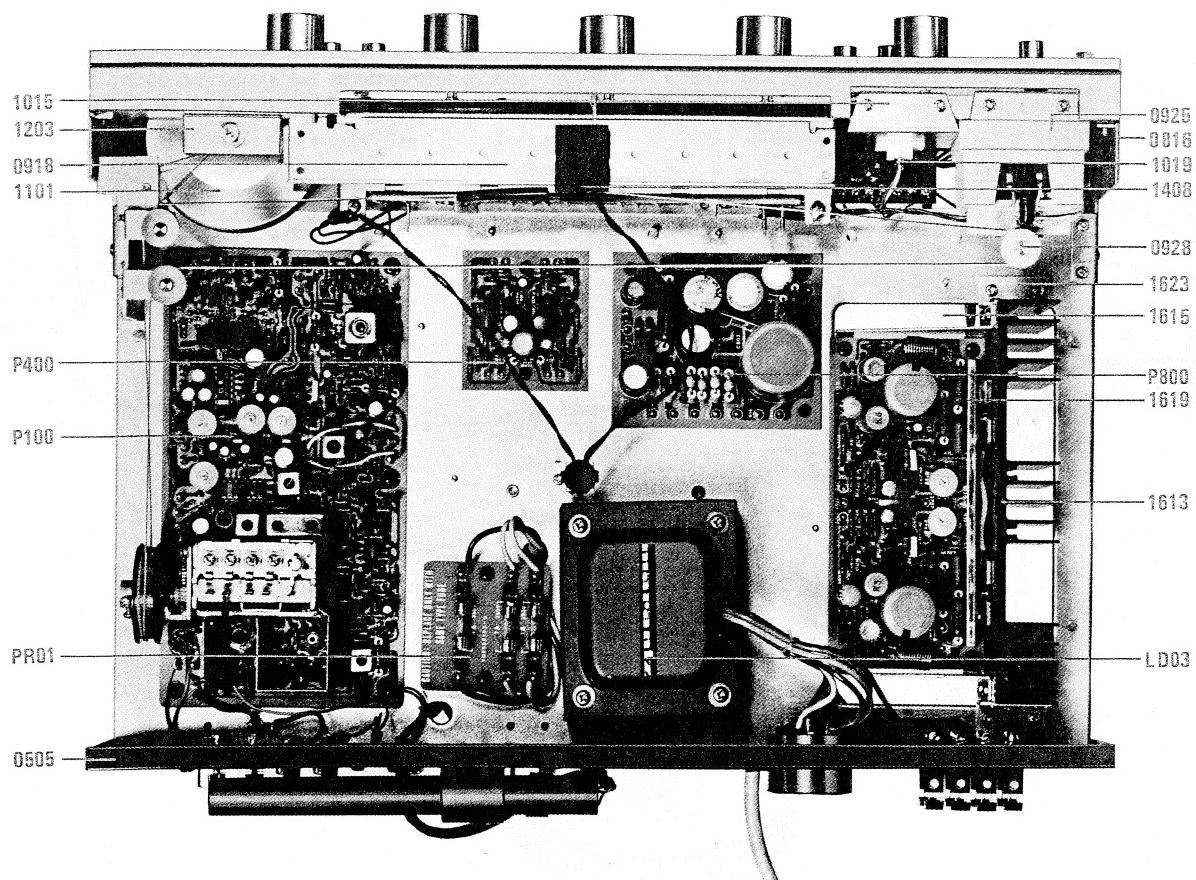


Fig. 3 Main Chassis Component Locations (Top View)

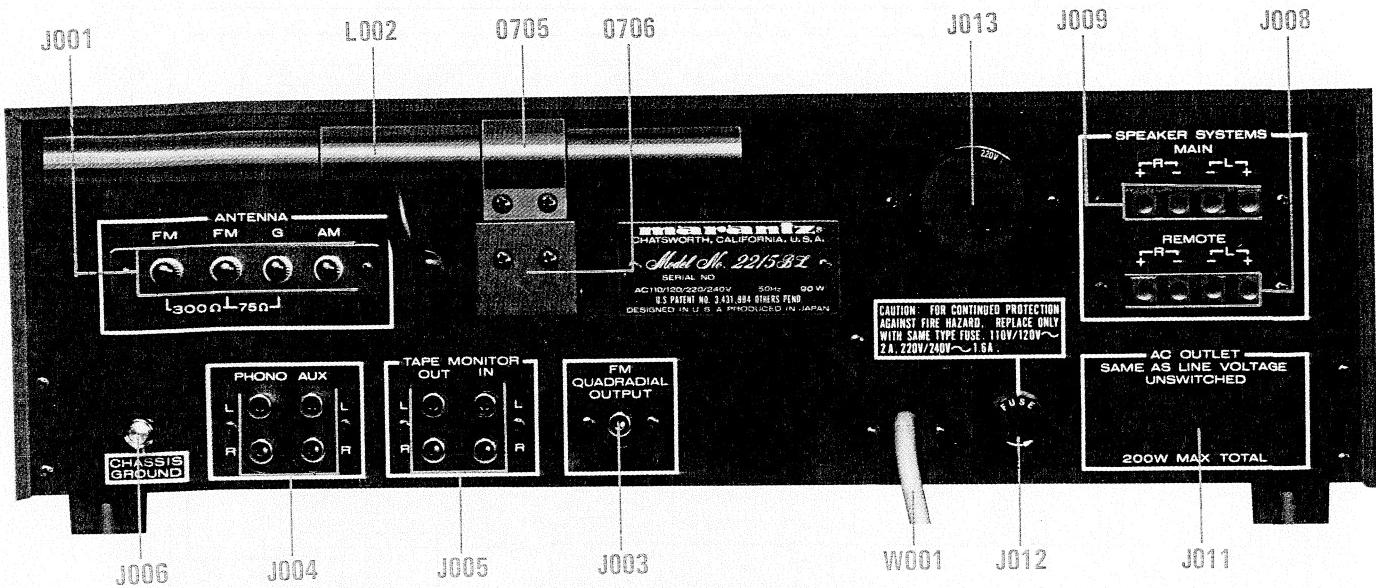


Fig. 4 Rear Panel Adjustment and Component Locations

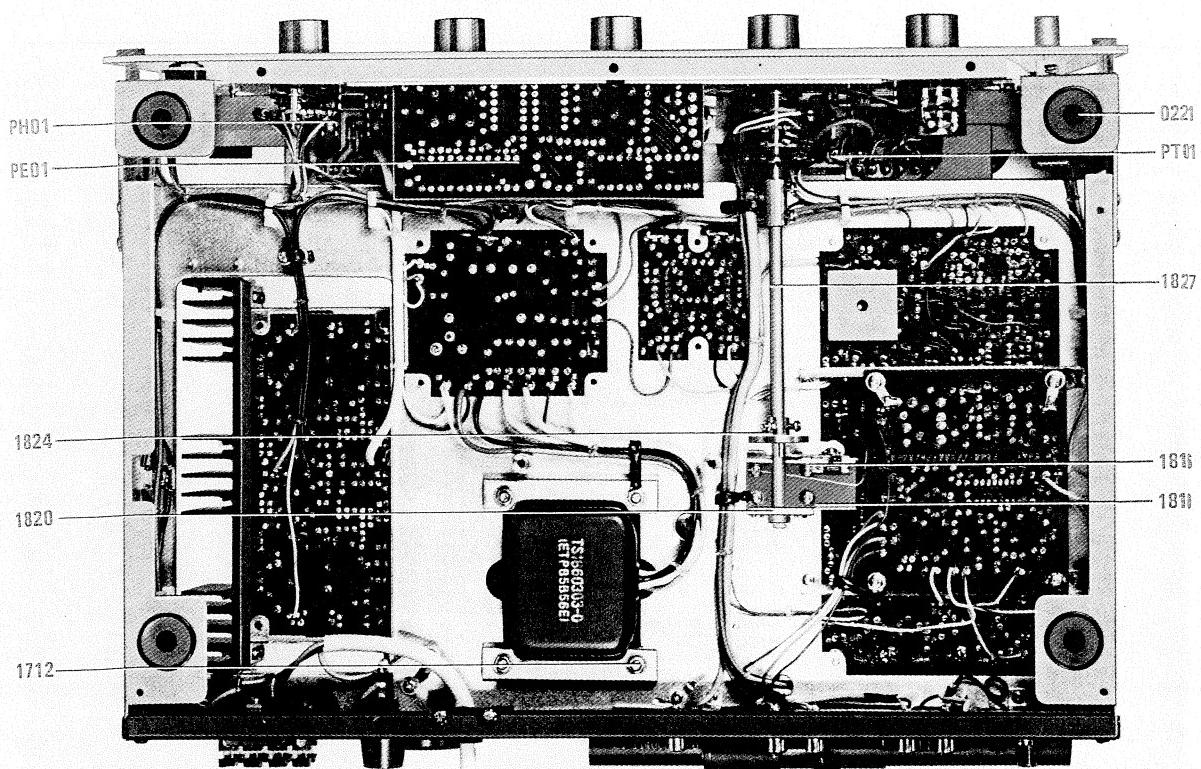


Fig. 5 Main Chassis Component Locations (Bottom View)

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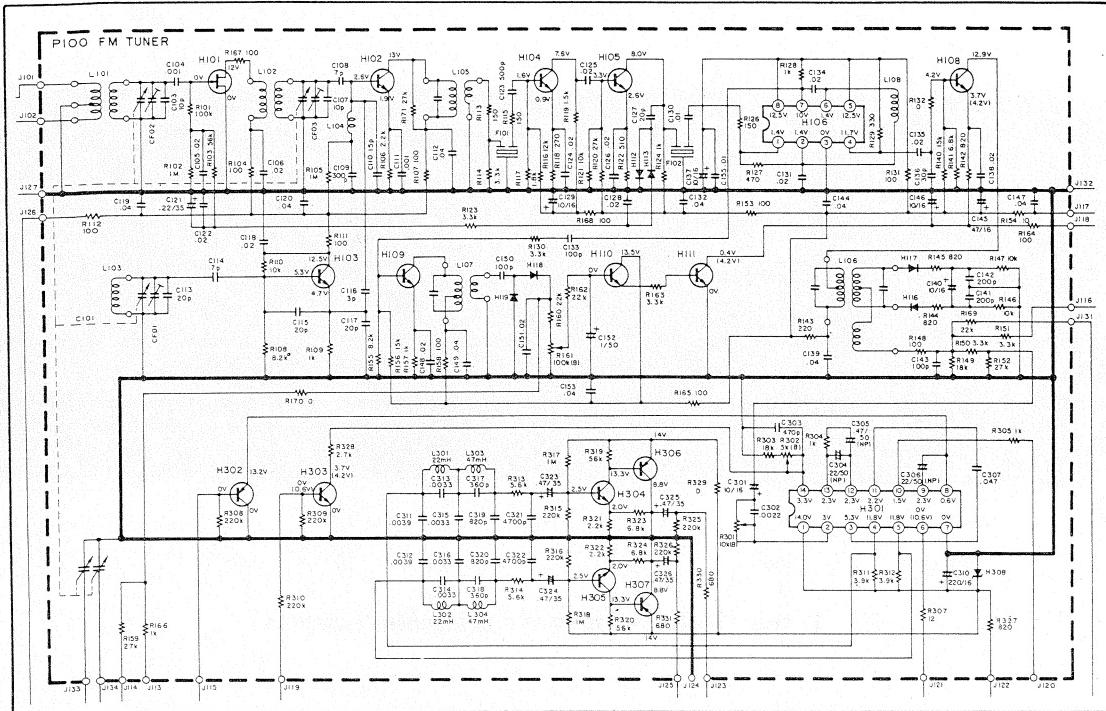


Fig. 6 FM Tuner Assembly (P100) Schematic Diagram

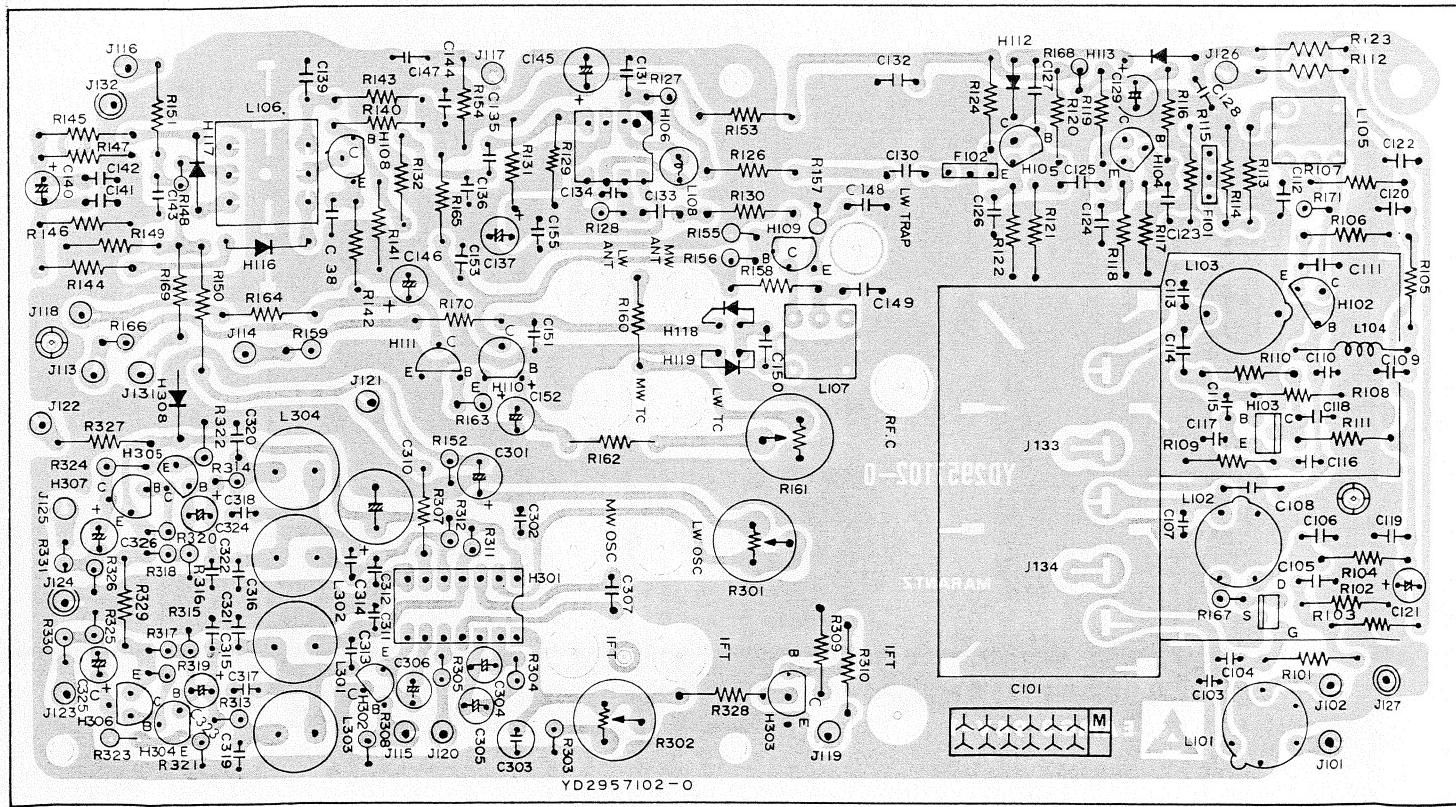


Fig. 7 FM Tuner Assembly (P100) Component Locations

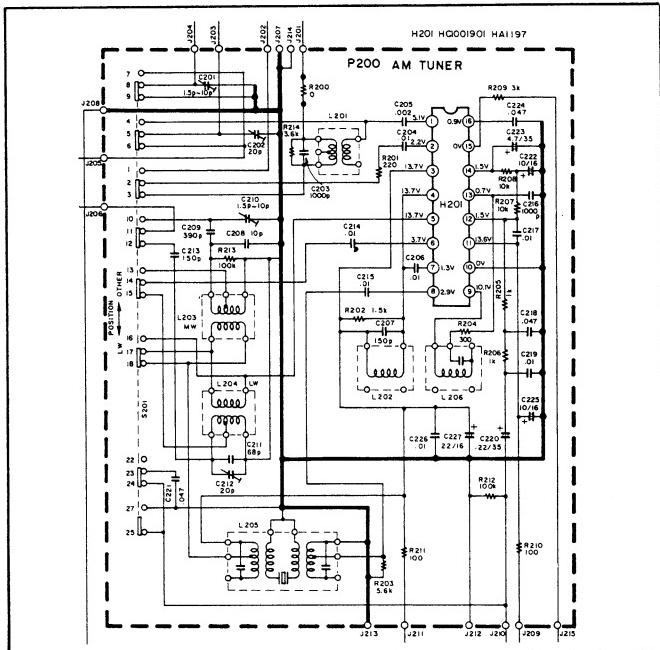


Fig. 8 AM Tuner Assembly (P200) Schematic Diagram

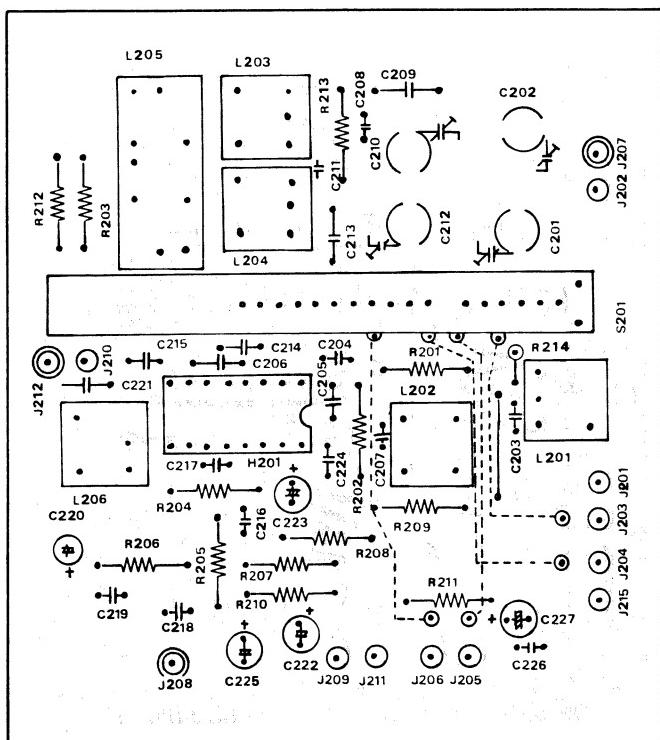


Fig. 9 AM Tuner Assembly (P200) Component Locations



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Fig. 10 Phono Amplifier Assembly (P400) Schematic Diagram

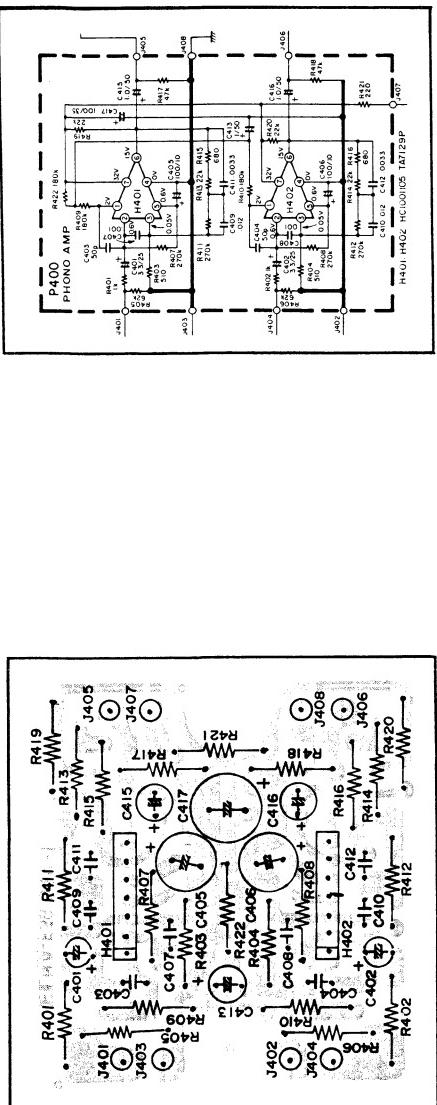


Fig. 11 Phono Amplifier Assembly (P400) Component Locations

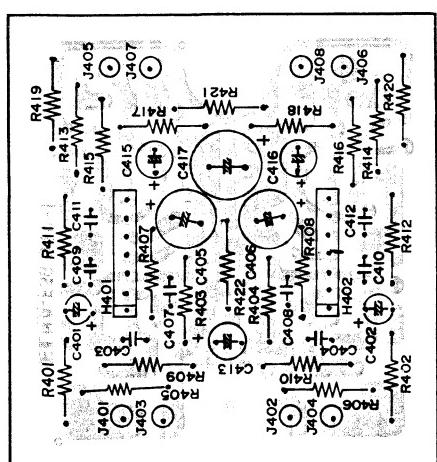
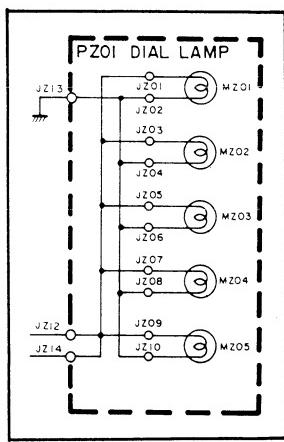


Figure 12 Dial Lamp Assembly (PZ01) Schematic Diagram



Jz₁₁ — Jz₁₂ — Jz₀₂ — [Jz₀₃] — [Jz₀₆] — [Jz₀₇] — Jz₁₃ — Jz₁₄ — Jz₁₀ —
 Jz₀₁ — [Mz₀₁] — [Mz₀₂] — [Jz₀₄] — [Jz₀₅] — [Mz₀₃] — [Mz₀₄] — [Jz₀₈] — [Jz₀₉] — [Mz₀₅] —

Figure 13 Dial Lamp Assembly (PZ01) Component Locations

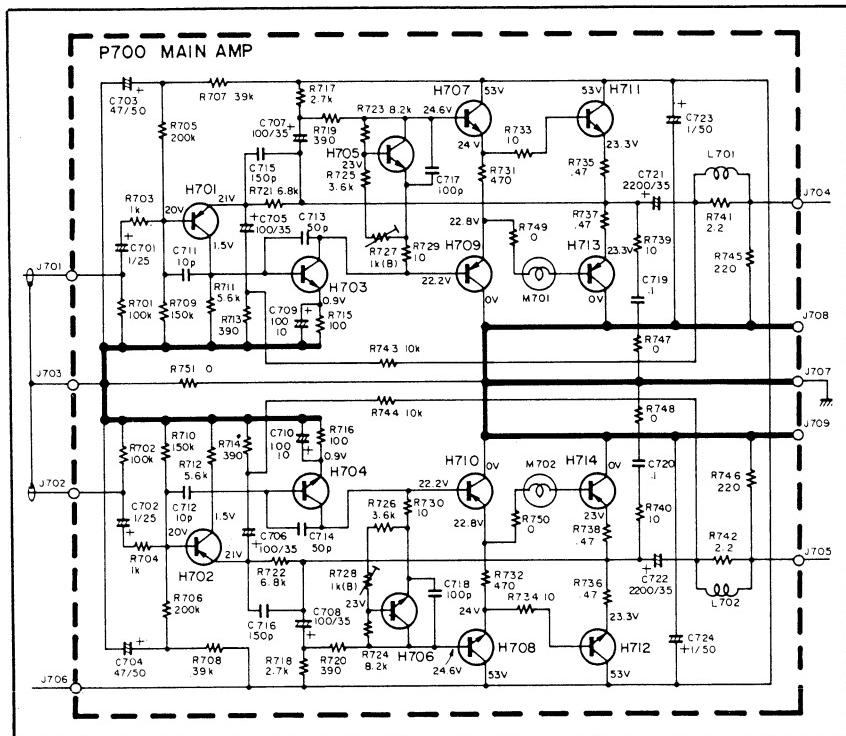
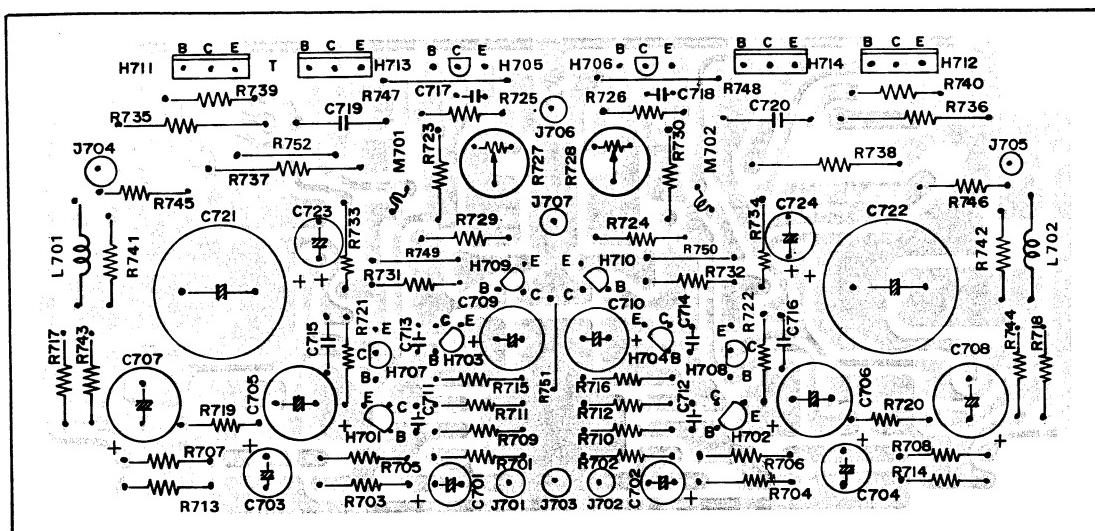


Figure 14 Power Amplifier Assembly (P700) Schematic Diagram



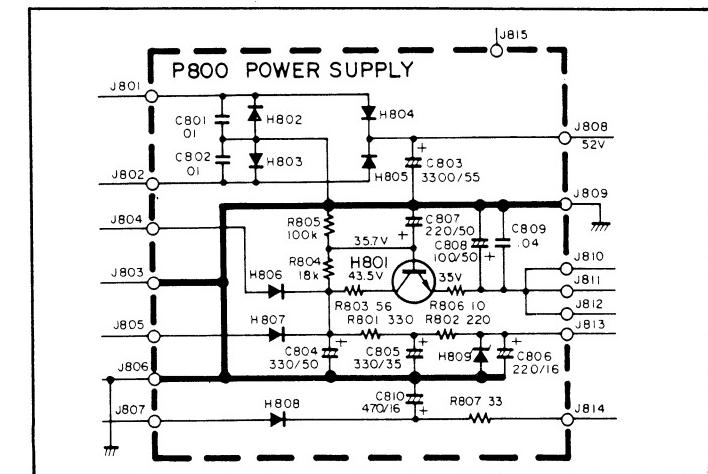


Figure 16 Power Supply Assembly (P800) Schematic Diagram

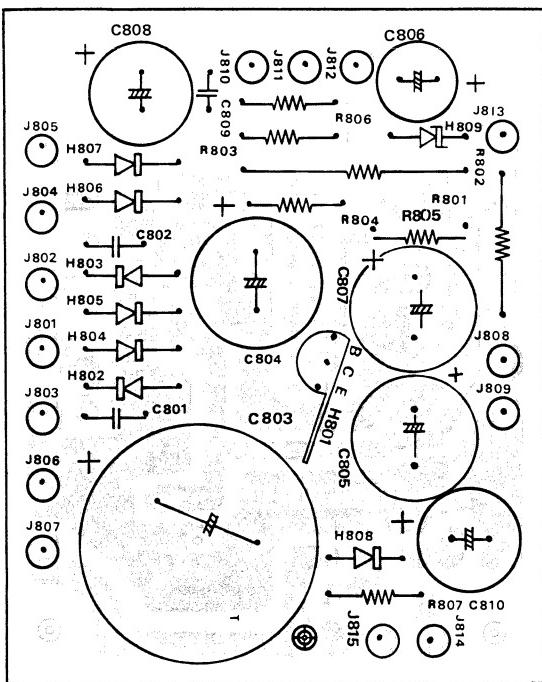


Figure 17 Power Supply Assembly (P800) Component Locations

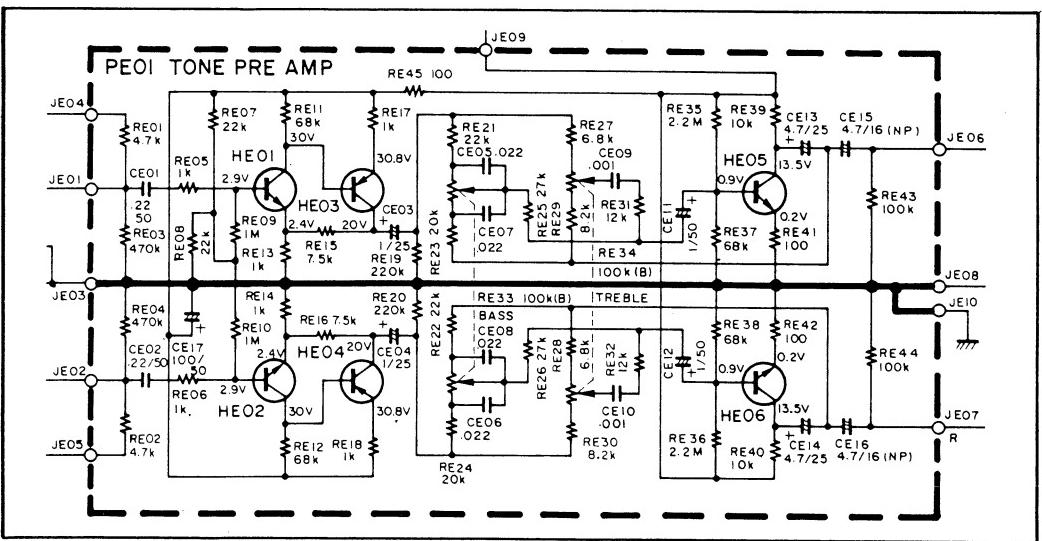


Figure 18 Tone Amplifier (PE01) Schematic Diagram

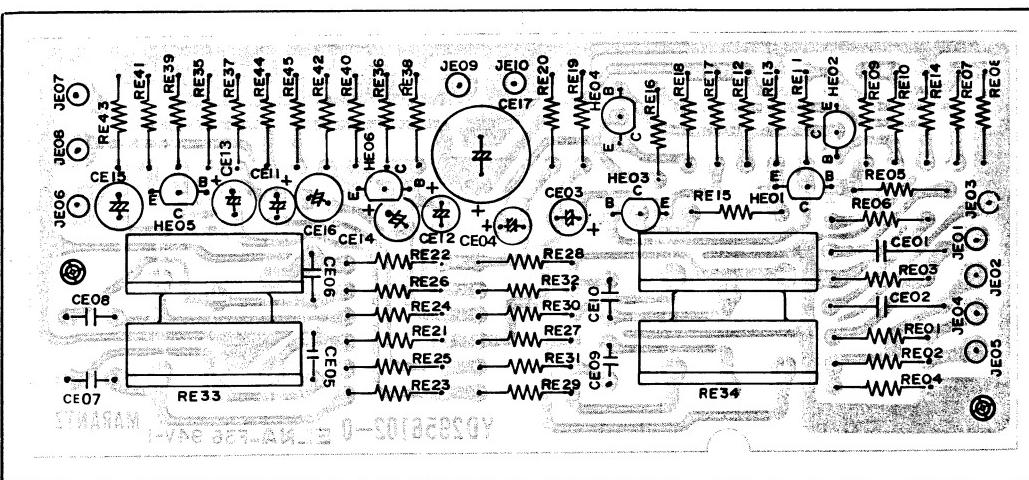


Figure 19 Tone Amplifier (PE01) Component Locations

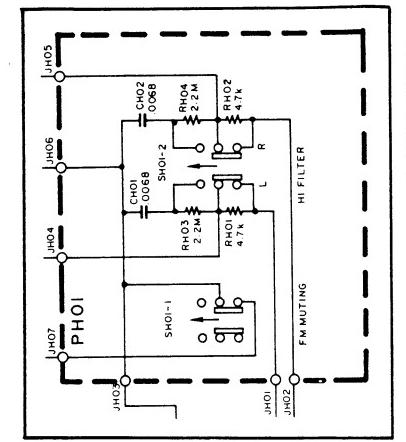


Figure 20 Muting Hi Filter Assembly (PH01) Schematic Diagram

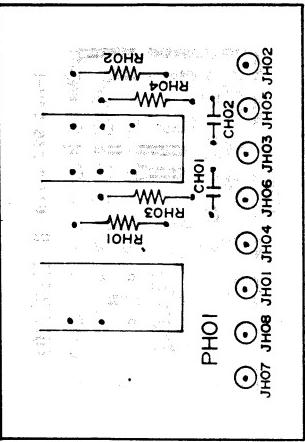


Figure 21 Muting Hi Filter Assembly (PH01) Component Locations

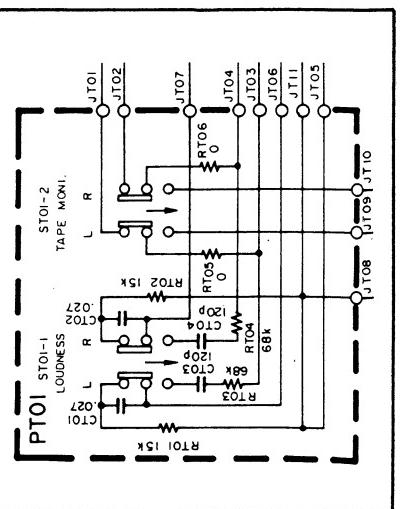


Figure 22 Loudness and Monitor Assembly (PT01) Schematic Diagram

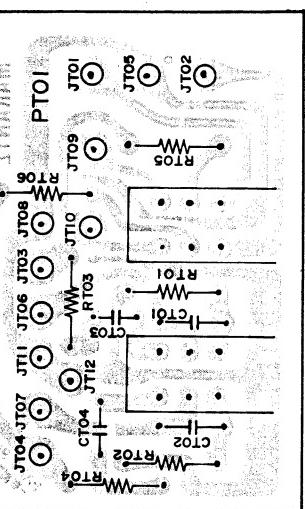


Figure 23 Loudness and Monitor Assembly (PT01) Component Locations

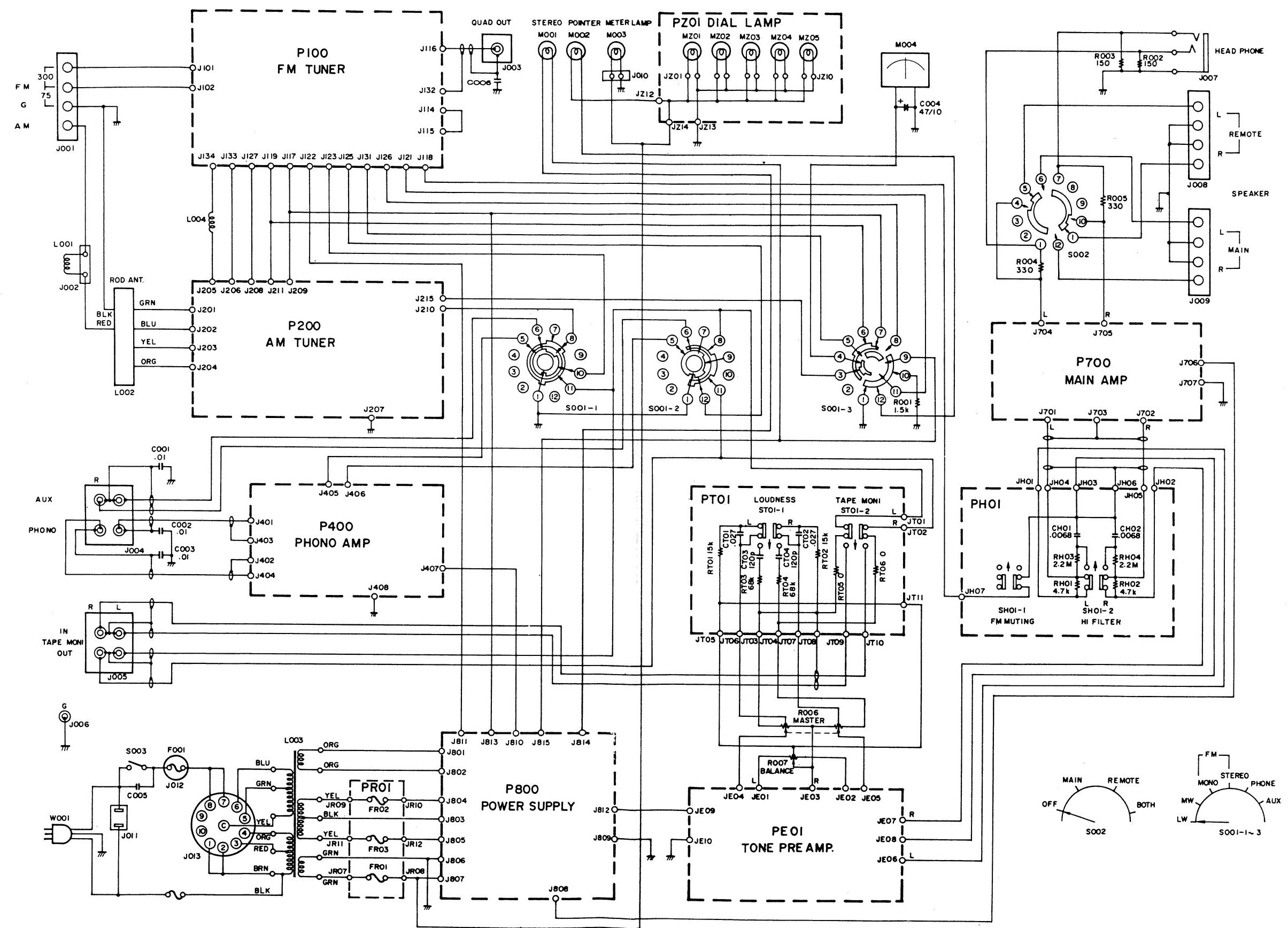


Figure 24. Functional Block Diagram

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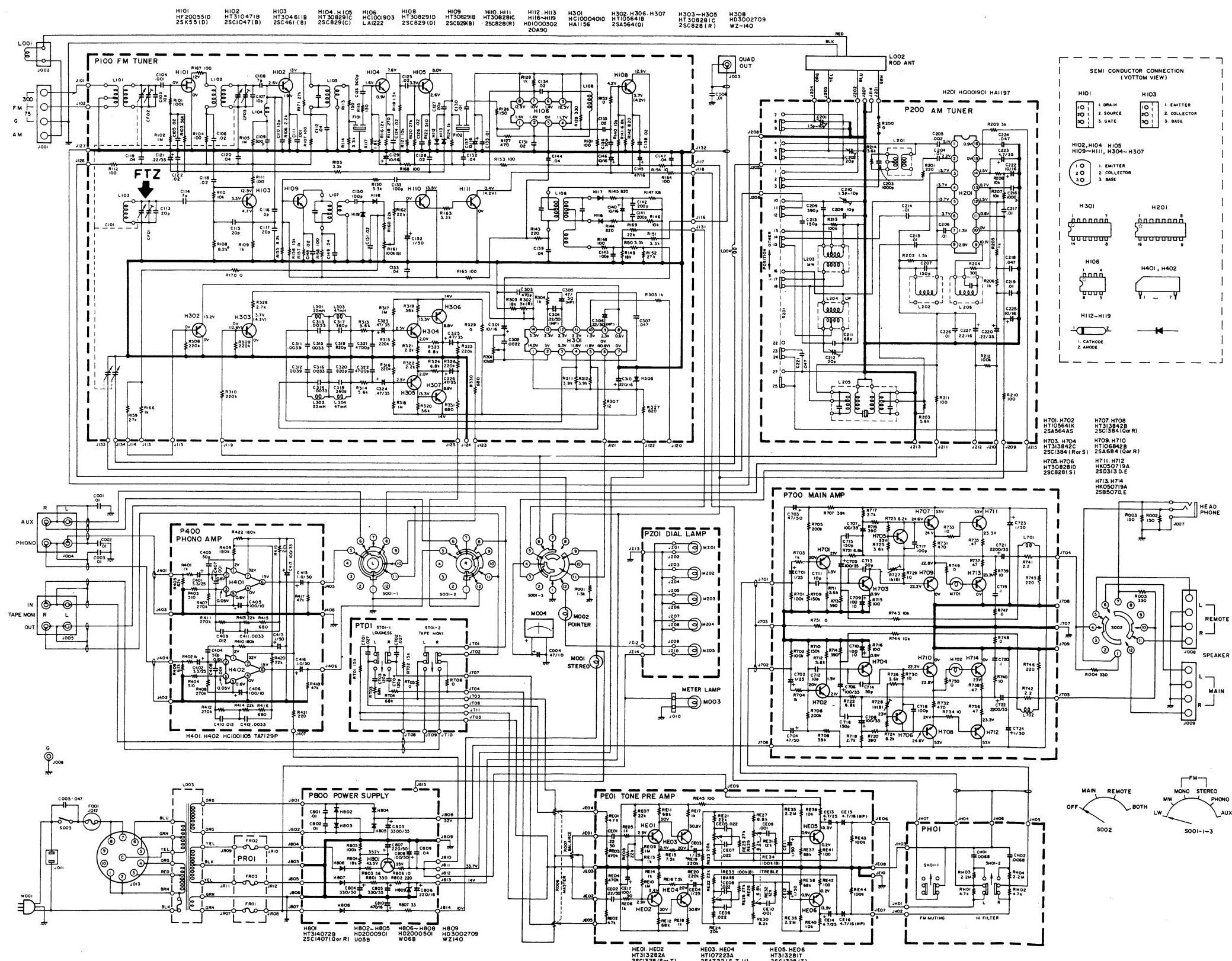
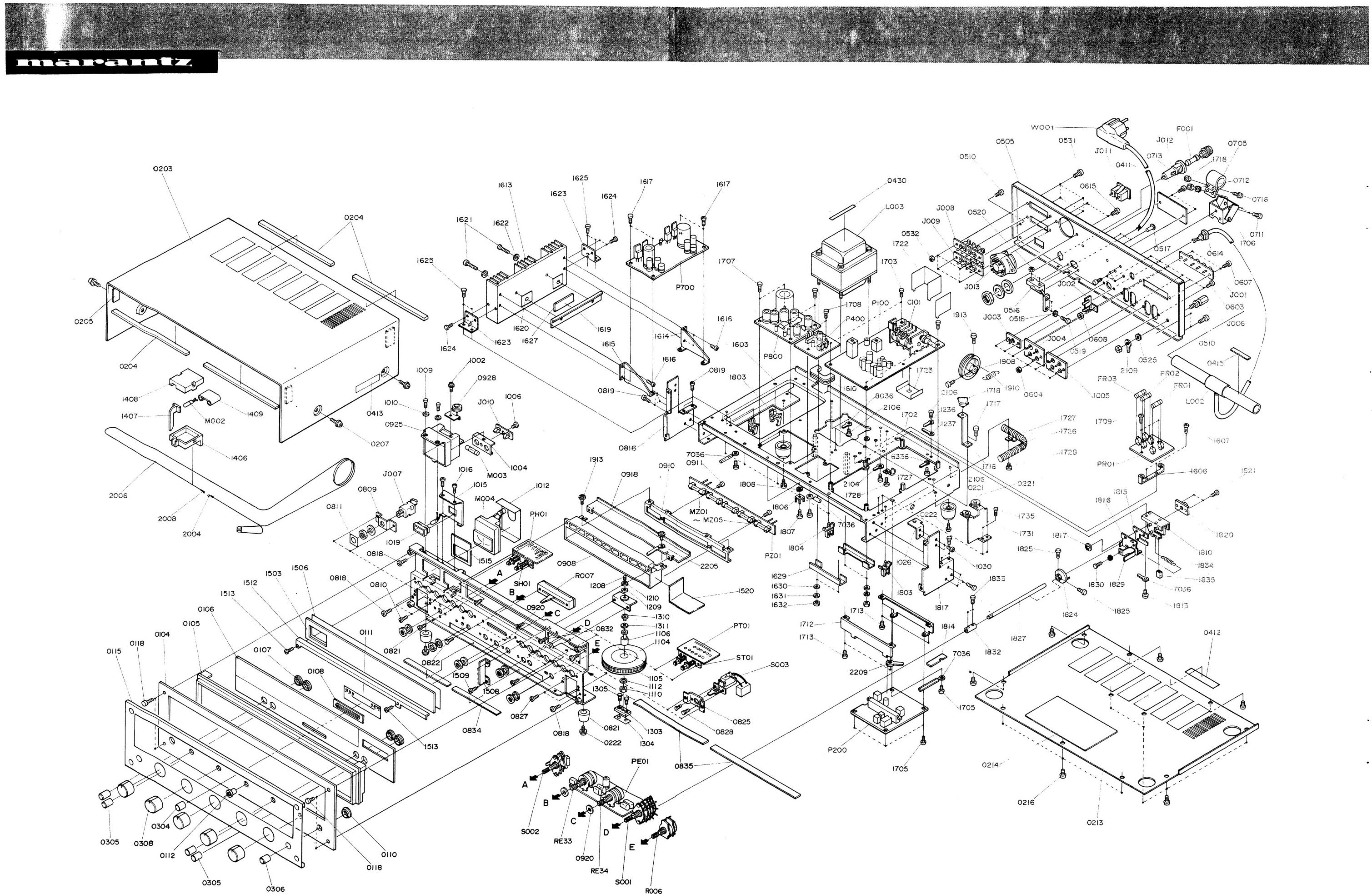


Figure 25. Schematic Diagram



Parts List

E: For Europe

REF DESIG.	Q'TY E	PARTS NO.	DESCRIPTION	REF DESIG.	Q'TY E	PARTS NO.	DESCRIPTION
A 0104	1	295706340	Front Panel Assembly	0304	1	285015401	Knob,
	1	295706301	Escutcheon	0305	4	288615403	Knob,
0105	1	285340101	Frame	0306	1	290415404	Knob,
0106	1	295615801	Window	0308	5	281815403	Knob,
0107	4	288625901	Bushing	0402	1	295726501	Indicator
0108	1	285425901	Bushing	0411	2	51100305S	B.H.M. Screw,
0110	1	281825905	Bushing	0412	1	257886101	Label,
0111	1	291510701	Sheet	0413	1	293286101	Label,
0115	1	291505301	Cover	0415	1	250626506	Indicator,
B 0203	1	295625740	Lid Assembly, Upper	0430	1	288686101	Label, "Marantz" on Transformer
0204	1	295625701	Lid	0510	6	51100306S	B.H.M. Screw,
0205	4	257711803	Spacer	0518	2	54050300R	T.L. Washer, OR
	4	285605601	Buffer	0519	2	51060316A	P.H.M. Screw,
C 0213	1	295625741	Lid Assembly, Lower	0520	2	53110303A	Hexagon Nut
0214	1	295625702	Lid	0525	1	54050400R	T.L. Washer, OR
	1	288812001	Insulator	0531	4	51100308S	B.H.M. Screw,
D 0505	1	295616040	Rear Panel Assembly	0532	4	53110303A	Hexagon Nut
0516	1	295616022	Bracket	0603	6	51100308S	B.H.M. Screw,
0517	2	282125901	Bushing	0604	6	53110303A	Hexagon Nut
	2	55060305S	T.R. Rivet	0607	2	51100308S	B.H.M. Screw,
E 1104	1	285327340	Flywheel Assembly	0608	1	53110303E	Hexagon Nut
1105	2	257706302	Escutcheon	0610	3	51100306S	B.H.M. Screw,
1106	1	257727301	Flywheel	0614	1	145825907	Bushing
1107	1	285311201	Shaft	0615	2	51100308S	B.H.M. Screw,
1110	1	53110603E	Hexagon Nut	0705	1	281927103	Holder
1112	1	54020601E	Flat Washer	0706	1	257816052	Bracket, K
F 1406	1	291510341	Pointer Assembly	0711	2	51100310S	B.H.M. Screw,
1407	1	291510301	Pointer	0712	2	54050300R	T.L. Washer, OR
1408	1	282610301	Pointer	0713	2	53110303E	Hexagon Nut
1409	1	291510302	Pointer	0716	2	51100310S	B.H.M. Screw,
M002	1	291526703	Heatsink	0718	2	53110303E	Hexagon Nut
	1	IN1008030	Lamp	0803	1	291516050	Bracket, K
G 1908	1	281915941	Drum Assembly	0809	1	291516006	Bracket
1910	1	281915901	Drum	0810	2	51100306A	B.H.M. Screw,
1913	2	71101569M	Spring	0811	1	289610701	Sheet
	2	51064019A	P.H.M. Screw P4 x 19	0816	1	281816003	Bracket
H 2004	1	120200640	Hook Assembly	0817	1	281816004	Bracket
2006	1	120225801	Hook	0818	4	51100405A	B.H.M. Screw,
	1	72080802A	String	0819	10	51570306B	P.H. Tapped Screw,
				0821	4	51100306A	B.H.M. Screw,
0118	4	52017039J	Bolt	0822	2	51100306A	B.H.M. Screw,
0122	1	289205502	Collar	0825	1	291516005	Bracket
0207	4	51480406S	B.H.M. Screw F,	0827	2	51100306A	B.H.M. Screw,
0216	11	51100406S	B.H.M. Screw,	0828	2	51060306A	B.H.M. Screw,
0221	4	293205701	Leg	0832	2	51470306A	B.H.M. Screw S,
0222	4	51440410S	P.H.M. Screw S,	0834	2	288612002	Insulator
				0835	2	291612001	Insulator
				0902	2	292705502	Collar
				0908	1	287127401	Reflector
				0910	1	287127101	Holder
				0911	2	51570306B	P.H. Tapped Screw,
				0913	2	51480306A	B.H.M. Screw F,
				0918	1	287105102	Guide
				0920	2	51042608A	F.H.M. Screw,
				0925	1	285427401	Reflector
				0928	1	295626250	Pulley, K
				1002	1	51480308A	B.H.M. Screw F,
							B3 x 8

E: For Europe

REF DESIG.	Q'TY E	PARTS NO.	DESCRIPTION
1004	1	285427101	Holder
1006	1	51570305B	P.H. Tapped Screw, P3 x 5
1009	2	51570306B	P.H. Tapped Screw, P3 x 6
1010	2	54050300R	T.L. Washer, OR
1012	1	288610701	Sheet
1015	1	291516004	Bracket
1016	2	51570306B	P.H. Tapped Screw, P3 x 6
1019	1	291225901	Bushing
1026	1	291626251	Pulley, K
1030	2	51100305A	B.H.M. Screw, B3 x 5
1203	1	285310650	Bearing, K
1208	1	51640410D	Set Screw
1209	1	54040402N	Spring Washer
1210	1	53110403E	Hexagon Nut
1303	1	257710602	Bearing
1304	1	141511801	Spacer
1305	2	51040306A	F.H.M. Screw, F3 x 6
1310	1	285011202	Shaft
1311	1	54040402N	Spring Washer
1503	1	295730201	Dial
1506	1	285310701	Sheet
1508	1	285326901	Protector
1509	2	51570305B	P.H. Tapped Screw, P3 x 5
1512	1	291526901	Protector
1513	2	51570305B	P.H. Tapped Screw, P3 x 5
1515	1	287105302	Cover
1520	1	281912005	Insulator
1603	1	295610550	Chassis, K
1606	1	285416003	Bracket
1607	2	51570306B	P.H. Tapped Screw, P3 x 6
1610	1	288925901	Bushing
1613	1	389926701	Heatsink
1614	1	295616002	Bracket
1615	1	295616003	Bracket
1616	4	51380306P	P.H. Tapped Screw, P3 x 6
1617	4	51100312S	B.H.M. Screw, B3 x 12
1619	1	295600501	Clamper
1620	2	287411801	Spacer
1621	2	51100312A	B.H.M. Screw, B3 x 12
1622	2	54040302A	Spring Washer
1623	2	295616004	Bracket
1624	4	51380306P	P.H. Tapped Screw, P3 x 6
1625	4	51570306B	P.H. Tapped Screw, P3 x 6
1627	1	391711801	Spacer
1629	2	295616005	Bracket
1630	4	54020401A	Flat Washer, P
1631	4	54040402A	Spring Washer
1632	4	53110403A	Hexagon Nut
1702	6	285110101	Support
1703	6	51100306S	B.H.M. Screw, B3 x 6
1704	1	59030810P	Washer
1705	4	51100306E	B.H.M. Screw, B3 x 6
1707	4	51570306S	P.H. Tapped Screw, P3 x 6
1708	2	51570306S	P.H. Tapped Screw, P3 x 6
1709	2	51100306S	B.H.M. Screw, B3 x 6
1711	1	295716002	Bracket
1712	1	295716003	Bracket

REF DESIG.	Q'TY E	PARTS NO.	DESCRIPTION
1713	4	51570306B	P.H. Tapped Screw, P3 x 6
1716	1	292716005	Bracket
1717	1	51570306B	P.H. Tapped Screw, P3 x 6
1718	1	290825901	Bushing
1721	1	282110901	Shield
1722	1	389610903	Shield
1723	1	285010902	Shield
1726	1	288210901	Shield
1727	2	295600502	Clamper
1728	2	51570306B	P.H. Tapped Screw, P3 x 6
1731	1	295626251	Pulley, K
1735	2	51570306B	P.H. Tapped Screw, P3 x 6
1803	5	288600506	Clamper
1804	3	288600505	Clamper
1806	2	291012301	Contactor
1807	2	51570306B	P.H. Tapped Screw, P3 x 6
1808	2	54050300R	T.L. Washer, OR
1810	1	295716050	Bracket, K
1813	4	51570306B	P.H. Tapped Screw, P3 x 6
1814	1	295700501	Clamper
1815	1	295711801	Spacer
1816	1	295735401	Lever
1817	3	64002500R	RG Ring, E Type
1820	1	295710601	Bearing
1821	2	51100305A	B.H.M. Screw, B3 x 5
1824	1	295735901	Rotor
1825	2	51064019A	Set Screw
1827	1	295711201	Shaft
1829	1	295711501	Spring
1830	1	51570306B	P.H. Tapped Screw, P3 x 6
1831	1	54050300R	T.L. Washer, OR
1832	1	289612501	Joint
1833	2	51064019A	Set Screw
1834	1	317511502	Spring
1835	1	295705601	Buffer
2008	1	56382540G	Eyelet
2104	5	62030039W	Lug
2106	4	51570306B	P.H. Tapped Screw, P3 x 6
2109	1	62041760W	Lug
2205	5	138200503	Clamper
2206	3	51570306B	P.H. Tapped Screw, P3 x 6
2209	1	282100501	Clamper
2303	1	295785131	Instructions, Set
2309	1	295785601	Schematic
2314	1	28188510B	Instructions, Accessories
2317	1	281885104	Instructions, Packing
2324	1	257785401	Guarantee Card
2325	1	257785102	Instructions, Important
2327	1	281881301	Envelope
2402	1	295780101	Packing Case, Inner
2403	1	295780102	Packing Case, Outer
2408	2	344880301	Cushion
2411	1	291810715	Sheet
2412	1	901453835	Polyethylene Bag,
2414	1	901302501	Polyethylene Bag,
2415	1	901302501	Polyethylene Bag,
2417	1	102980401	Sleeve

E: For Europe

REF DESIG.	Q'TY E	PARTS NO.	DESCRIPTION
2418	1	956000004	Hang Tag
2419	1	273182101	Silicagel
2420	1	281905601	Buffer
2424	4	952301511	Serial No. Card
2432	1	ZA0200007	Ext. Antenna
P100 FM TUNER BOARD			
P100	1	YD2957102	P.W. Board
	1	ZZ2957102	P.W. Board Assembly
P108	8	293311802	Spacer
R101	1	RT0510414	Resistor, 100kΩ ±5% 1/4W
R102	1	RT0510514	Resistor, 1MΩ ±5% 1/4W
R103	1	RT0556314	Resistor, 56kΩ ±5% 1/4W
R104	1	RT0510114	Resistor, 100Ω ±5% 1/4W
R105	1	RT0510514	Resistor, 1MΩ ±5% 1/4W
R106	1	RT0522214	Resistor, 2.2kΩ ±5% 1/4W
R107	1	RT0510114	Resistor, 100Ω ±5% 1/4W
R108	1	RT0582214	Resistor, 8.2kΩ ±5% 1/4W
R109	1	RT0510214	Resistor, 1kΩ ±5% 1/4W
R110	1	RT0510314	Resistor, 10kΩ ±5% 1/4W
R111	1	RT0510114	Resistor, 100Ω ±5% 1/4W
R112	1	RT0510114	Resistor, 100Ω ±5% 1/4W
R113	1	RT0515114	Resistor, 150Ω ±5% 1/4W
R114	1	RT0533214	Resistor, 3.3kΩ ±5% 1/4W
R115	1	RT0515114	Resistor, 150Ω ±5% 1/4W
R116	1	RT0512314	Resistor, 12kΩ ±5% 1/4W
R117	1	RT0518214	Resistor, 1.8kΩ ±5% 1/4W
R118	1	RT0527114	Resistor, 270Ω ±5% 1/4W
R119	1	RT0515214	Resistor, 1.5kΩ ±5% 1/4W
R120	1	RT0527314	Resistor, 27kΩ ±5% 1/4W
R121	1	RT0510314	Resistor, 10kΩ ±5% 1/4W
R122	1	RT0551114	Resistor, 510Ω ±5% 1/4W
R123	1	RT0533314	Resistor, 33kΩ ±5% 1/4W
R124	1	RT0510214	Resistor, 1kΩ ±5% 1/4W
R126	1	RT0515114	Resistor, 150Ω ±5% 1/4W
R127	1	RT0547114	Resistor, 470Ω ±5% 1/4W
R128	1	RT0510214	Resistor, 1kΩ ±5% 1/4W
R129	1	RT0533114	Resistor, 330Ω ±5% 1/4W
R130	1	RT0533214	Resistor, 3.3kΩ ±5% 1/4W
R131	1	RT0510114	Resistor, 100Ω ±5% 1/4W
R132	1	RC0000012	Resistor, 0Ω
R140	1	RT0515314	Resistor, 15kΩ ±5% 1/4W
R141	1	RT0568214	Resistor, 6.8kΩ ±5% 1/4W
R142	1	RT0582114	Resistor, 820Ω ±5% 1/4W
R143	1	RT0522114	Resistor, 220Ω ±5% 1/4W
R144	1	RT0582114	Resistor, 820Ω ±5% 1/4W
R145	1	RT0582114	Resistor, 820Ω ±5% 1/4W
R146	1	RT0510314	Resistor, 10kΩ ±5% 1/4W
R147	1	RT0510314	Resistor, 10kΩ ±5% 1/4W
R148	1	RT0510114	Resistor, 100Ω ±5% 1/4W
R149	1	RT0518314	Resistor, 18kΩ ±5% 1/4W
R150	1	RT0533214	Resistor, 3.3kΩ ±5% 1/4W
R151	1	RT0533214	Resistor, 3.3kΩ ±5% 1/4W
R152	1	RT0527314	Resistor, 27kΩ ±5% 1/4W
R153	1	RT0510114	Resistor, 100Ω ±5% 1/4W
R154	1	RT0510014	Resistor, 10Ω ±5% 1/4W
R155	1	RT0582214	Resistor, 8.2kΩ ±5% 1/4W

REF DESIG.	Q'TY E	PARTS NO.	DESCRIPTION
R156	1	RT0515314	Resistor, 15kΩ ±5% 1/4W
R157	1	RT0510214	Resistor, 1kΩ ±5% 1/4W
R158	1	RT0510114	Resistor, 100Ω ±5% 1/4W
R159	1	RT0527314	Resistor, 27kΩ ±5% 1/4W
R160	1	RT0522314	Resistor, 22kΩ ±5% 1/4W
R161	1	RA0104018	Trimming Resistor, 100Ω (B)
R162	1	RT0522314	Resistor, 22kΩ ±5% 1/4W
R163	1	RT0533214	Resistor, 3.3kΩ ±5% 1/4W
R164	1	RT0510114	Resistor, 100Ω ±5% 1/4W
R165	1	RT0510114	Resistor, 100Ω ±5% 1/4W
R166	1	RT0510214	Resistor, 1kΩ ±5% 1/4W
R167	1	RT0510114	Resistor, 100Ω ±5% 1/4W
R168	1	RT0510114	Resistor, 100Ω ±5% 1/4W
R169	1	RT0522314	Resistor, 22kΩ ±5% 1/4W
R170	1	RC0000012	Resistor, 0Ω
R171	1	RT0527314	Resistor, 27kΩ ±5% 1/4W
R330	1	RT0568114	Resistor, 680Ω ±5% 1/4W
R331	1	RT0568114	Resistor, 680Ω ±5% 1/4W
R301	1	RA0103025	Trimming Resistor, 10kΩ (B)
R302	1	RA0472005	Trimming Resistor, 4.7kΩ (B)
R303	1	RT0518314	Resistor, 18kΩ ±5% 1/4W
R304	1	RT0510214	Resistor, 1kΩ ±5% 1/4W
R305	1	RT0510214	Resistor, 1kΩ ±5% 1/4W
R307	1	RT0512014	Resistor, 12Ω ±5% 1/4W
R308	1	RT0522414	Resistor, 220kΩ ±5% 1/4W
R309	1	RT0522414	Resistor, 220kΩ ±5% 1/4W
R310	1	RT0522414	Resistor, 220kΩ ±5% 1/4W
R311	1	RT0539214	Resistor, 3.9kΩ ±5% 1/4W
R312	1	RT0539214	Resistor, 3.9kΩ ±5% 1/4W
R313	1	RT0556214	Resistor, 5.6kΩ ±5% 1/4W
R314	1	RT0556214	Resistor, 5.6kΩ ±5% 1/4W
R315	1	RT0522414	Resistor, 220kΩ ±5% 1/4W
R316	1	RT0522414	Resistor, 220kΩ ±5% 1/4W
R317	1	RT0510514	Resistor, 1MΩ ±5% 1/4W
R318	1	RT0510514	Resistor, 1MΩ ±5% 1/4W
R319	1	RT0556314	Resistor, 56kΩ ±5% 1/4W
R320	1	RT0556314	Resistor, 56kΩ ±5% 1/4W
R321	1	RT0522214	Resistor, 2.2kΩ ±5% 1/4W
R322	1	RT0522214	Resistor, 2.2kΩ ±5% 1/4W
R323	1	RT0568214	Resistor, 6.8kΩ ±5% 1/4W
R324	1	RT0568214	Resistor, 6.8kΩ ±5% 1/4W
R325	1	RT0522414	Resistor, 220kΩ ±5% 1/4W
R326	1	RT0522414	Resistor, 220kΩ ±5% 1/4W
GJ0582101	1		Resistor, 820Ω 1W
R328	1	RT0527214	Resistor, 2.7kΩ ±5% 1/4W
R329	1	RC0000012	Resistor, 0Ω
C101	1	CA3230004	Variable Cap., FM-3 AM-2
C103	1	DD1210001	Ceramic Cap., 10pF ±1pF
C104	1	DK1710201	Ceramic Cap., 0.001μF ±20%
C105	1	DK1820302	Ceramic Cap., 0.02μF ±10%
C106	1	DK1820302	Ceramic Cap., 0.02μF ±10%
C107	1	DD1210001	Ceramic Cap., 10pF ±1pF
C108	1	DD1207003	Ceramic Cap., 7pF ±1pF
C109	1	DD1530101	Ceramic Cap., 300pF ±5%
C110	1	DD1615003	Ceramic Cap., 15pF ±10%
C111	1	DK1710201	Ceramic Cap., 0.001μF ±20%
C112	1	DK1840302	Ceramic Cap., 0.04μF ±10%

E: For Europe

REF DESIG.	Q'TY E	PARTS NO.	DESCRIPTION	REF DESIG.	Q'TY E	PARTS NO.	DESCRIPTION
C113	1	DD1520002	Ceramic Cap., 20pF ±5%	C318	1	DD1536101	Ceramic Cap., 360pF ±5%
C114	1	DD1207003	Ceramic Cap., 7pF ±1pF	C319	1	DF5582101	Film Cap., 820pF ±5%
C115	1	DD1520001	Ceramic Cap., 20pF ±5%	C320	1	DF5582101	Film Cap., 820pF ±5%
C116	1	DD1103001	Ceramic Cap., 3pF ±0.5pF	C321	1	DF1547201	Film Cap., 4700pF ±5%
C117	1	DD1520001	Ceramic Cap., 20pF ±5%	C322	1	DF1547201	Film Cap., 4700pF ±5%
C118	1	DK1820302	Ceramic Cap., 0.02μF ±1% 0%	C323	1	EV4740356	Electrolytic Cap., 0.47μF 30V
C119	1	DK1840302	Ceramic Cap., 0.04μF ±1% 0%	C324	1	EV4740356	Electrolytic Cap., 0.47μF 30V
C120	1	DK1840302	Ceramic Cap., 0.04μF ±1% 0%	C325	1	EV4740356	Electrolytic Cap., 0.47μF 30V
C121	1	EV2240356	Electrolytic Cap., 0.022μF 35V	C326	1	EV4740356	Electrolytic Cap., 0.47μF 30V
C122	1	DK1820302	Ceramic Cap., 0.02μF ±1% 0%	L101	1	LA1202612	FM Ant. Coil
C123	1	DD1650101	Ceramic Cap., 500pF ±10%	L102	1	LA1202610	FM RF Coil
C124	1	DK1820302	Ceramic Cap., 0.02μF ±1% 0%	L103	1	LO1203601	FM Osc. Coil
C125	1	DK1820302	Ceramic Cap., 0.02μF ±1% 0%	L104	1	LC1751001	Choke Coil, 0.75μH
C126	1	DK1820302	Ceramic Cap., 0.02μF ±1% 0%	L105	1	LI1001601	FM IFT
C127	1	DD1620001	Ceramic Cap., 20pF ±10%	L106	1	LI1401623	FM IFT
C128	1	DK1820302	Ceramic Cap., 0.02μF ±1% 0%	L107	1	LI1015602	FM IFT
C129	1	EA1060169	Electrolytic Cap., 10μF 16V	L108	1	LC1223002	Choke Coil, 22mH
C130	1	DK1810301	Ceramic Cap., 0.01μF ±1% 0%	L301	1	LC2226004	Choke Coil, 22mH
C131	1	DK1820302	Ceramic Cap., 0.02μF ±1% 0%	L302	1	LC2226004	Choke Coil, 22mH
C132	1	DK1840302	Ceramic Cap., 0.04μF ±1% 0%	L303	1	LC2476001	Choke Coil, 47mH
C133	1	DD1610101	Ceramic Cap., 100pF ±10%	L304	1	LC2476001	Choke Coil, 47mH
C134	1	DK1820302	Ceramic Cap., 0.02μF ±1% 0%	F101	1	FF1107005	Ceramic Filter, SFE 10.7 MD-1
C135	1	DK1820302	Ceramic Cap., 0.02μF ±1% 0%	F102	1	FF1107005	Ceramic Filter, SFE 10.7 MD-1
C136	1	DD1530001	Ceramic Cap., 30pF ±5%	H101	1	HF200551D	FET 2SK55 (D)
C137	1	EA1060169	Electrolytic Cap., 10μF 16V	H102	1	HT310471B	Transistor, 2SC1047 (B)
C138	1	DK1820302	Ceramic Cap., 0.02μF ±1% 0%	H103	1	HT304611B	Transistor, 2SC461 (B)
C139	1	DK1840302	Ceramic Cap., 0.04μF ±1% 0%	H104	1	HT308291C	Transistor, 2SC829 (C)
C140	1	EA1060169	Electrolytic Cap., 10μF 16V	H105	1	HT308291C	Transistor, 2SC829 (C)
C141	1	DD1620101	Ceramic Cap., 200pF ±10%	H106	1	HC1001903	IC LA1222
C142	1	DD1620101	Ceramic Cap., 200pF ±10%	H108	1	HT308291D	Transistor, 2SC829 (D)
C143	1	DD1610101	Ceramic Cap., 100pF ±10%	H109	1	HT308291B	Transistor, 2SC829 (B)
C144	1	DK1840302	Ceramic Cap., 0.04μF ±1% 0%	H110	1	HT308281C	Transistor, 2SC828 (R)
C145	1	EA4760169	Electrolytic Cap., 47μF 16V	H111	1	HT308281C	Transistor, 2SC828 (R)
C146	1	EA1060169	Electrolytic Cap., 10μF 16V	H112	1	HD1000302	Diode, 20A90
C147	1	DK1840302	Ceramic Cap., 0.04μF ±1% 0%	H113	1	HD1000302	Diode, 20A90
C148	1	DK1820302	Ceramic Cap., 0.02μF ±1% 0%	H116	1	HD1000302	Diode, 20A90
C149	1	DK1840302	Ceramic Cap., 0.04μF ±1% 0%	H117	1	HD1000302	Diode, 20A90
C150	1	DD1610101	Ceramic Cap., 100pF ±10%	H118	1	HD1000302	Diode, 20A90
C151	1	DK1820302	Ceramic Cap., 0.02μF ±1% 0%	H119	1	HD1000302	Diode, 20A90
C152	1	EA1050509	Electrolytic Cap., 1μF 50V	H301	1	HC1000401	IC, HA1156
C153	1	DK1840302	Ceramic Cap., 0.04μF ±1% 0%	H302	1	HT105641B	Transistor, 2SA564 (Q)
C155	1	DK1810301	Ceramic Cap., 0.01μF ±1% 0%	H303	1	HT308281C	Transistor, 2SC828 (R)
C301	1	EA1060169	Electrolytic Cap., 10μF 16V	H304	1	HT308281C	Transistor, 2SC828 (R)
C302	1	DF1622201	Film Cap., 0.0022μF ±10%	H305	1	HT308281C	Transistor, 2SC828 (R)
C303	1	DF5547101	Film Cap., 470pF ±5%	H306	1	HT105641B	Transistor, 2SA564 (Q)
C304	1	EQ2240501	Electrolytic Cap., 0.22μF 50V	H307	1	HT105641B	Transistor, 2SA564 (Q)
C305	1	EQ4740501	Electrolytic Cap., 0.47μF 50V	H308	1	HD3002709	Diode, WZ-140
C306	1	EQ2240501	Electrolytic Cap., 0.22μF 50V	J101	1	YP1000114	Plug
C307	1	DF1747301	Film Cap., 0.047μF ±20%	J102	1	YP1000114	Plug
C310	1	EA2270169	Electrolytic Cap., 220μF 16V	J113	15	YP1000114	Plug
C311	1	DF1639201	Film Cap., 0.0039μF ±10%	J127			
C312	1	DF1639201	Film Cap., 0.0039μF ±10%	J131			
C313	1	DF1533201	Film Cap., 0.0033μF ±5%	J134	4	YP1000114	Plug
C314	1	DF1533201	Film Cap., 0.0033μF ±5%				
C315	1	DF1633201	Film Cap., 0.0033μF ±10%				
C316	1	DF1633201	Film Cap., 0.0033μF ±10%				
C317	1	DD1536101	Ceramic Cap., 360pF ±5%				

E: For Europe

E : For Europe

REF DESIG.	Q'TY E	PARTS NO.	DESCRIPTION	REF DESIG.	Q'TY E	PARTS NO.	DESCRIPTION	
R705	1	RT0520414	Resistor, 200kΩ ±5% 1/4W	C716	1	DD1615101	Ceramic Cap., 150pF ±10%	
R706	1	RT0520414	Resistor, 200kΩ ±5% 1/4W	C717	1	DD1610101	Ceramic Cap., 100pF ±10%	
R707	1	RT0539314	Resistor, 39kΩ ±5% 1/4W	C718	1	DD1610101	Ceramic Cap., 100pF ±10%	
R708	1	RT0539314	Resistor, 39kΩ ±5% 1/4W	C719	1	DF1610405	Film Cap., 0.1μF ±10%	
R709	1	RT0515414	Resistor, 150kΩ ±5% 1/4W	C720	1	DF1610405	Film Cap., 0.1μF ±10%	
R710	1	RT0515414	Resistor, 150kΩ ±5% 1/4W	C721	1	EB2280355	Electrolytic Cap., 2200μF 35V	
R711	1	RT0556214	Resistor, 5.6kΩ ±5% 1/4W	C722	1	EB2280355	Electrolytic Cap., 2200μF 35V	
R712	1	RT0556214	Resistor, 5.6kΩ ±5% 1/4W	C723	1	EA1050509	Electrolytic Cap., 1μF 50V	
R713	1	RT0539114	Resistor, 390Ω ±5% 1/4W	C724	1	EA1050509	Electrolytic Cap., 1μF 50V	
R714	1	RT0539114	Resistor, 390Ω ±5% 1/4W	L701	1	LC2272001	Choke Coil, 2.7μH ±20%	
R715	1	RT0510114	Resistor, 100Ω ±5% 1/4W	L702	1	LC2272001	Choke Coil, 2.7μH ±20%	
R716	1	RT0510114	Resistor, 100Ω ±5% 1/4W	M701	1	IN1006035	Lamp, 6V	
R717	1	RT0527214	Resistor, 2.7kΩ ±5% 1/4W	M702	1	IN1006035	Lamp, 6V	
R718	1	RT0527214	Resistor, 2.7kΩ ±5% 1/4W	J701	7	YP1000113	Plug	
R719	1	RT0539114	Resistor, 390Ω ±5% 1/4W	J707	1	RC0000012	Resistor, 0Ω	
R720	1	RT0539114	Resistor, 390Ω ±5% 1/4W	R752	1	RC0000012	Resistor, 0Ω	
R721	1	RT0568214	Resistor, 6.8kΩ ±5% 1/4W	R747	1	RC0000012	Resistor, 0Ω	
R722	1	RT0568214	Resistor, 6.8kΩ ±5% 1/4W	R748	1	RC0000012	Resistor, 0Ω	
R723	1	RT0582214	Resistor, 8.2kΩ ±5% 1/4W	R749	1	RC0000012	Resistor, 0Ω	
R724	1	RT0582214	Resistor, 8.2kΩ ±5% 1/4W	R750	1	RC0000012	Resistor, 0Ω	
R725	1	RT0536214	Resistor, 3.6kΩ ±5% 1/4W	R751	1	RC0000012	Resistor, 0Ω	
R726	1	RT0536214	Resistor, 3.6kΩ ±5% 1/4W	H701	1	HT105641K	Transistor, 2SA564AS	
R727	1	RA0102021	Resistor, 1kΩ (B)	H702	1	HT105641K	Transistor, 2SA564AS	
R728	1	RA0102021	Resistor, 1kΩ (B)	H703	1	HT313842C	Transistor, 2SC1384R or S	
R729	1	RT0510014	Resistor, 10Ω ±5% 1/4W	H704	1	HT313842C	Transistor, 2SC1384R or S	
R730	1	RT0510014	Resistor, 10Ω ±5% 1/4W	H705	1	HT308281D	Transistor, 2SC828S	
R731	1	GF0547114	Resistor, 470Ω ±5% 1/4W	H706	1	HT308281D	Transistor, 2SC828S	
R732	1	GF0547114	Resistor, 470Ω ±5% 1/4W	H707	1	HT313842B	Transistor, 2SC1384Q or R	
R733	1	GF0510014	Resistor, 10Ω ±5% 1/4W	H708	1	HT313842B	Transistor, 2SC1384Q or R	
R734	1	GF0510014	Resistor, 10Ω ±5% 1/4W	R735	1	GK0547202	Resistor, 0.47Ω ±5% 2W	
R736	1	GK0547202	Resistor, 0.47Ω ±5% 2W	R737	1	GK0547202	Resistor, 0.47Ω ±5% 2W	
R737	1	GK0547202	Resistor, 0.47Ω ±5% 2W	R738	1	GK0547202	Resistor, 0.47Ω ±5% 2W	
R738	1	GK0547202	Resistor, 0.47Ω ±5% 2W	R739	1	RC1010012	Resistor, 10Ω ±10% 1/4W	
R739	1	RC1010012	Resistor, 10Ω ±10% 1/4W	R740	1	RC1010012	Resistor, 10Ω ±10% 1/4W	
R740	1	RC1002212	Resistor, 2.2Ω ±10% 1/4W	R741	1	RC1002212	Resistor, 2.2Ω ±10% 1/4W	
R742	1	RC1002212	Resistor, 2.2Ω ±10% 1/4W	R743	1	RT0510314	Resistor, 10kΩ ±5% 1/4W	
R743	1	RT0510314	Resistor, 10kΩ ±5% 1/4W	R744	1	RT0510314	Resistor, 10kΩ ±5% 1/4W	
R744	1	RC1022112	Resistor, 220Ω ±10% 1/4W	P800	1	YD2956103	P800 POWER SUPPLY BOARD	
R745	1	RC1022112	Resistor, 220Ω ±10% 1/4W	P800	1	ZZ2956103	P. W. Board	
R746	1	RC1022112	Resistor, 220Ω ±10% 1/4W	P800	1	YD2956103	P. W. Board Assembly	
C701	1	EV1050256	Electrolytic Cap., 1μF 25V	P809	10	293311801	Spacer	
C702	1	EV1050256	Electrolytic Cap., 1μF 25V	P808	10	293311802	Spacer	
C703	1	EA4760509	Electrolytic Cap., 47μF 50V	R801	1	GJ0533103	Resistor, 330Ω ±5% 3W	
C704	1	EA4760509	Electrolytic Cap., 47μF 50V	R802	1	GJ0522102	Resistor, 220Ω ±5% 2W	
C705	1	EE1070355	Electrolytic Cap., 100μF 35V	R803	1	RC1056012	Resistor, 56Ω ±10% 1/4W	
C706	1	EE1070355	Electrolytic Cap., 100μF 35V	R804	1	RT0518314	Resistor, 18kΩ ±5% 1/4W	
C707	1	EA1070359	Electrolytic Cap., 100μF 35V	R805	1	RT0510414	Resistor, 100kΩ ±5% 1/4W	
C708	1	EA1070359	Electrolytic Cap., 100μF 35V	R806	1	RC1010012	Resistor, 10Ω ±10% 1/4W	
C709	1	EA1070109	Electrolytic Cap., 100μF 10V	R807	1	GF0533012	Resistor, 33Ω ±10% 1/4W	
C710	1	EA1070109	Electrolytic Cap., 100μF 10V	C801	1	DK1810351	Ceramic Cap., 0.01μF ±20%	
C711	1	DD1610001	Ceramic Cap., 10pF ±10%	C802	1	DK1810351	Ceramic Cap., 0.01μF ±20%	
C712	1	DD1610001	Ceramic Cap., 10pF ±10%	C803	1	EB3380552	Electrolytic Cap., 3300μF 55V	
C713	1	DD1650001	Ceramic Cap., 50pF ±10%	C804	1	EA3370509	Electrolytic Cap., 330μF 50V	
C714	1	DD1650001	Ceramic Cap., 50pF ±10%	C805	1	EA3370359	Electrolytic Cap., 330μF 35V	
C715	1	DD1615101	Ceramic Cap., 150pF ±10%	C806	1	EA2270169	Electrolytic Cap., 220μF 16V	
				C807	1	EA2270509	Electrolytic Cap., 220μF 50V	
				C808	1	EA1070509	Electrolytic Cap., 100μF 50V	

E: For Europe

REF DESIG.	Q'TY E	PARTS NO.	DESCRIPTION
C809	1	DK1840301	Ceramic Cap., 0.04μF ±20%
C810	1	EA4770169	Electrolytic Cap., 470μF 16V
H801	1	HT314072B	Transistor, 2SC1407Q or R
H802	1	HD2000901	Diode, U05B
H803	1	HD2000901	Diode, U05B
H804	1	HD2000901	Diode, U05B
H805	1	HD2000901	Diode, U05B
H806	1	HD2000501	Diode, W06B
H807	1	HD2000501	Diode, W06B
H808	1	HD2000501	Diode, W06B
H809	1	HD3002709	Diode, WZ140
J801	15	YP1000113	Plug
PE01 TONE BOARD			
PE01	1	YD2956102	P. W. Board
	1	ZZ2956102	P. W. Board Assembly
PE08	2	293311802	Spacer
RE01	1	RT0547214	Resistor, 4.7kΩ ±5% 1/4W
RE02	1	RT0547214	Resistor, 4.7kΩ ±5% 1/4W
RE03	1	RT0547414	Resistor, 470kΩ ±5% 1/4W
RE04	1	RT0547414	Resistor, 470kΩ ±5% 1/4W
RE05	1	RT0510214	Resistor, 1kΩ ±5% 1/4W
RE06	1	RT0510214	Resistor, 1kΩ ±5% 1/4W
RE07	1	RT0522314	Resistor, 22kΩ ±5% 1/4W
RE08	1	RT0522214	Resistor, 2.2kΩ ±5% 1/4W
RE09	1	RN0510514	Resistor, 1MΩ ±5% 1/4W
RE10	1	RN0510514	Resistor, 1MΩ ±5% 1/4W
RE11	1	RT0568314	Resistor, 68kΩ ±5% 1/4W
RE12	1	RT0568314	Resistor, 68kΩ ±5% 1/4W
RE13	1	RT0510214	Resistor, 1kΩ ±5% 1/4W
RE14	1	RT0510214	Resistor, 1kΩ ±5% 1/4W
RE15	1	RT0575214	Resistor, 7.5kΩ ±5% 1/4W
RE16	1	RT0575214	Resistor, 7.5kΩ ±5% 1/4W
RE17	1	RT0510214	Resistor, 1kΩ ±5% 1/4W
RE18	1	RT0510214	Resistor, 1kΩ ±5% 1/4W
RE19	1	RT0522414	Resistor, 220kΩ ±5% 1/4W
RE20	1	RT0522414	Resistor, 220kΩ ±5% 1/4W
RE21	1	RT0522314	Resistor, 22kΩ ±5% 1/4W
RE22	1	RT0522314	Resistor, 22kΩ ±5% 1/4W
RE23	1	RT0520314	Resistor, 20kΩ ±5% 1/4W
RE24	1	RT0520314	Resistor, 20kΩ ±5% 1/4W
RE25	1	RT0527314	Resistor, 27kΩ ±5% 1/4W
RE26	1	RT0527314	Resistor, 27kΩ ±5% 1/4W
RE27	1	RT0568214	Resistor, 6.8kΩ ±5% 1/4W
RE28	1	RT0568214	Resistor, 6.8kΩ ±5% 1/4W
RE29	1	RT0582214	Resistor, 8.2kΩ ±5% 1/4W
RE30	1	RT0582214	Resistor, 8.2kΩ ±5% 1/4W
RE31	1	RT0512314	Resistor, 12kΩ ±5% 1/4W
RE32	1	RT0512314	Resistor, 12kΩ ±5% 1/4W
RE33	1	RM0104005	Variable Resistor, 100kΩ (B)
RE34	1	RM0104005	Variable Resistor, 100kΩ (B)
RE35	1	RT0522514	Resistor, 2.2MΩ ±5% 1/4W
RE36	1	RT0522514	Resistor, 2.2MΩ ±5% 1/4W
RE37	1	RT0568314	Resistor, 68kΩ ±5% 1/4W
RE38	1	RT0568314	Resistor, 68kΩ ±5% 1/4W
RE39	1	RT0510314	Resistor, 10kΩ ±5% 1/4W

REF DESIG.	Q'TY E	PARTS NO.	DESCRIPTION
RE40	1	RT0510314	Resistor, 10kΩ ±5% 1/4W
RE41	1	RT0510114	Resistor, 100Ω ±5% 1/4W
RE42	1	RT0510114	Resistor, 100Ω ±5% 1/4W
RE43	1	RT0510414	Resistor, 100kΩ ±5% 1/4W
RE44	1	RT0510414	Resistor, 100kΩ ±5% 1/4W
RE45	1	RT0510114	Resistor, 100Ω ±5% 1/4W
CE01	1	DF1722405	Film Cap., 0.22μF 50V ±20%
CE02	1	DF1722405	Film Cap., 0.22μF 50V ±20%
CE03	1	EE1050501	Electrolytic Cap., 1μF 25V ±20%
CE04	1	EE1050501	Electrolytic Cap., 1μF 25V ±20%
CE05	1	DF1622305	Film Cap., 0.022μF 50V ±10%
CE06	1	DF1622305	Film Cap., 0.022μF 50V ±10%
CE07	1	DF1622305	Film Cap., 0.022μF 50V ±10%
CE08	1	DF1622305	Film Cap., 0.022μF 50V ±10%
CE09	1	DF1610205	Film Cap., 0.001μF 50V ±10%
CE10	1	DF1610205	Film Cap., 0.001μF 50V ±10%
CE11	1	EE1050501	Electrolytic Cap., 1μF 50V ±20%
CE12	1	EE1050501	Electrolytic Cap., 1μF 50V ±20%
CE13	1	EE4750251	Electrolytic Cap., 4.7μF 25V ±20%
CE14	1	EE4750251	Electrolytic Cap., 4.7μF 25V ±20%
CE15	1	EQ4750161	Electrolytic Cap., 4.7μF 16V ±30%
CE16	1	EQ4750161	Electrolytic Cap., 4.7μF 16V ±30%
CE17	1	EA1070509	Electrolytic Cap., 100μF 50V ±20%
HE01	1	HT313282A	Transistor, 2SC1328(S or T)
HE02	1	HT313282A	Transistor, 2SC1328(S or T)
HE03	1	HT107223A	Transistor, 2SA722(S, T, U)
HE04	1	HT107223A	Transistor, 2SA722(S, T, U)
HE05	1	HT313281T	Transistor, 2SC1328(T)
HE06	1	HT313281T	Transistor, 2SC1328(T)
JE01	10	YP1000113	Plug
PH01 MUTING, HI FILTER BOARD			
PH01	1	YD2956106	P. W. Board
	1	ZZ2956106	P. W. Board Assembly
RH01	1	RT0547214	Resistor, 4.7kΩ ±5% 1/4W
RH02	1	RT0547214	Resistor, 4.7kΩ ±5% 1/4W
RH03	1	RT0522514	Resistor, 2.2MΩ ±5% 1/4W
RH04	1	RT0522514	Resistor, 2.2MΩ ±5% 1/4W
CH01	1	DF1668205	Film Cap., 0.0068μF
CH02	1	DF1668205	Film Cap., 0.0068μF
SH01	1	SP0202008	Push Switch
JH01	7	YP1000113	Plug
PT01 LOUDNESS, MONITOR BOARD			
PT01	1	YD2956105	P. W. Board
	1	ZZ2956105	P. W. Board Assembly
RT01	1	RT0515314	Resistor, 15kΩ ±5% 1/4W
RT02	1	RT0515314	Resistor, 15kΩ ±5% 1/4W
RT03	1	RT0568314	Resistor, 68kΩ ±5% 1/4W
RT04	1	RT0568314	Resistor, 68kΩ ±5% 1/4W
RT05	1	RC0000012	Resistor, 0Ω
RT06	1	RC0000012	Resistor, 0Ω
CT01	1	DF1627305	Film Cap., 0.027μF

E: For Europe

REF DESIG.	Q'TY E	PARTS NO.	DESCRIPTION	REF DESIG.	Q'TY E	PARTS NO.	DESCRIPTION
CT02	1	DF1627305	Film Cap., 0.027μF	R007	1	RX0504003	Variable Resistor
CT03	1	DD1612101	Ceramic Cap., 120pF	C001	1	DK1710301	Ceramic Cap., 0.01μF ±20%
CT04	1	DD1612101	Ceramic Cap., 120pF	C002	1	DK1710301	Ceramic Cap., 0.01μF ±20%
JT01	1	YP1000113	Plug	C003	1	DK1710301	Ceramic Cap., 0.01μF ±20%
JT11	1	SP0202008	Push Switch	C004	1	EA4760109	Electrolytic Cap., 47μF 10V
ST01	1			C006	1	DK1710301	Ceramic Cap., 0.01μF ±20%
				L001	1	LC1154004	Choke Coil, 150μH
PZ01	1	YD2886016	PZ01 DIAL LAMP BOARD	L002	1	LF1140082	Ant. Coil, AM Ant.
	1	ZZ2889116	P. W. Board	L003	1	TS1860303	Power Transformer
			P. W. Board Assembly	L004	1	LC1332002	Choke Coil, 3.3μH
MZ01	1	IN1008007	Lamp, 8V 200mA	C005	1	DF1747351	Film Cap.
MZ02	1	IN1008007	Lamp, 8V 200mA	M001	1	IN1008034	Lamp, St. Lamp
MZ03	1	IN1008007	Lamp, 8V 200mA	M003	1	IN1008007	Lamp, Meter Lamp
MZ04	1	IN1008007	Lamp, 8V 200mA	M004	1	IM1104208	meter, Tuning
MZ05	1	IN1008007	Lamp, 8V 200mA	F001	1	FS1016002	Fuse, 20 m/m
JZ01	1	YJ0800017	Socket	W001	1	YC0190003	AC Cord
JZ10	1						
JZ11	1	YP1000113	Plug				
JZ14	1						
PR01	1	YD2960103	PR01 FUSE BOARD				
	1	ZZ2960303	P. W. Board				
			P. W. Board Assembly				
JR01	1	YJ0800020	Jack				
JR06	1						
JR07	1	YP1000113	Plug				
JR12	1						
FR01	1	FS1040006	Fuse, 4A 20 m/m				
FR02	1	FS1010007	Fuse, 1A 20 m/m				
FR03	1	FS1010007	Fuse, 1A 20 m/m				
J001	1	YT0104015	Terminal, Ant.				
J002	1	YL0102003	Terminal, 2P				
J003	1	YT0201009	Terminal, Quad. Out				
J004	1	YT0204008	Terminal, Aux. Phono				
J005	1	YT0204008	Terminal, Tape				
J006	1	YT0101005	Terminal, Ground				
J007	1	YJ0100098	Socket, Headphone				
J008	1	YT0304006	Terminal, Speaker				
J009	1	YT0304006	Terminal, Speaker				
J010	1	YJ0800019	Socket, Meter Lamp				
J011	1	YJ0400056	Jack, AC Outlet				
J012	1	YJ0800022	Jack, Fuse Holder				
J013	1	BY0311001	Selector, Voltage				
S001	1	SR0806022	Rotary Switch, Selector				
S002	1	SR0204007	Rotary Switch, Speaker				
S003	1	SP0201015	Push Switch, Power				
R001	1	GF0515212	Resistor, 1.5kΩ ±5% ½W				
R002	1	GF0515112	Resistor, 150Ω ±5% ½W				
R003	1	GF0515112	Resistor, 150Ω ±5% ½W				
R004	1	GJ0533101	Resistor, 330Ω ±5% 1W				
R005	1	GJ0533101	Resistor, 330Ω ±5% ½W				
R006	1	RM0254022	Variable Resistor				

Technical Specifications

AMPLIFIER SECTION

RATED POWER OUTPUT, MINIMUM CONTINUOUS AVERAGE POWER PRE CHANNEL, BOTH CHANNELS DRIVEN	15 Watts
POWER BAND	40 Hz to 20 kHz
TOTAL HARMONIC DISTORTION	0.8%
LOAD IMPEDANCE	8 Ω
I.M. Distortion (I.H.F. method, 60 Hz and 7 kHz mixed 4:1 at rated power output)	0.8%
Damping Factor	40

PREAMPLIFIER SECTION

Phono	
Input Overload at 1 kHz	100 mV
Equivalent Input Noise	2.5 μV
Dynamic Range (Dynamic Range is the ratio of input overload to equivalent input noise)	92 dB
Input Sensitivity	2.2 mV
Input Impedance	47 kΩ
Frequency Response, RIAA	±1 dB
Signal-to-Noise Ratio (at rated output and 7.75 mV input)	74 dB
High Level (Aux and Tape)	
Input Sensitivity	150 mV
Input Impedance	100 kΩ
Frequency Response (includes power amp.)	20 Hz to 60 kHz ±1.5 dB 40 Hz to 20 kHz ±0.5 dB
Signal-to-Noise Ratio (ref. rated output and 755 mV input)	85 dB
Output Levels	
Tape Out (ref. 7.75 mV at Phono inputs)	525 mV
Output Impedance	
Tape Out	3 kΩ

FM TUNER SECTION

Sensitivity	
IHF 50 dB Quieting (mono)	4.0 μV (17.3 dBf)
(stereo)	50 μV (39.2 dBf)
Quieting Slope (Mono)	
RF Input for 30 dB Quietting	2.2 μV (12 dBf)
Sensitivity (DIN)	1.5 μV (8.7 dBf)
5 μV (19 dBf)	48 dB
10 μV (25 dBf)	55 dB
50 μV (39 dBf)	63 dB
1000 μV (65 dBf)	68 dB
Distortion (Mono)	
at 50 dB Quietting, 1000 Hz	0.7%
at 65 dBf (1000 μV), 1000 Hz	0.4%
Distortion (Stereo)	
at 50 dB Quietting, 1000 Hz	0.8%
at 65 dBf (1000 μV), 1000 Hz	0.7%
Hum and Noise	
at 65 dBf (1000 μV)	
Mono	68 dB
Stereo	55 dB
Frequency Response	
30 Hz to 15 kHz	±1.5 dB
Mono	±2.0 dB
Stereo	

Capture Ratio	4.0 dE
at 45 dBf (100 μV)	3.0 dE
at 65 dBf (1000 μV)	50 dE
Alternate Channel Selectivity	80 dE
Spurious Response Rejection	50 dE
Image Response Rejection	70 dE
I.F. Rejection (Balanced)	45 dE
A.M. Suppression	35 dE
Stereo Separation	38 dE
100 Hz	30 dE
1000 Hz	55 dE
10 kHz	35 dE
Subcarrier Rejection	40 dE

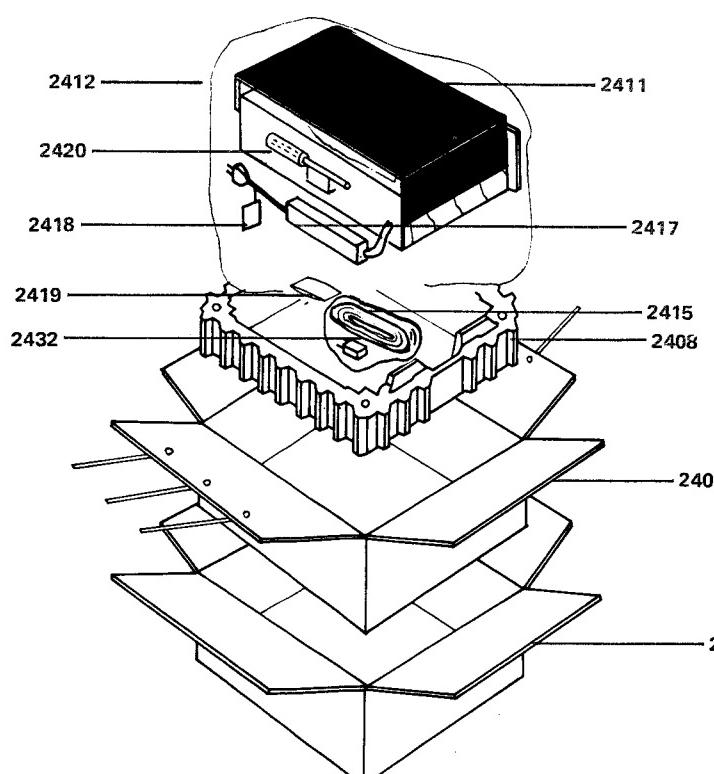
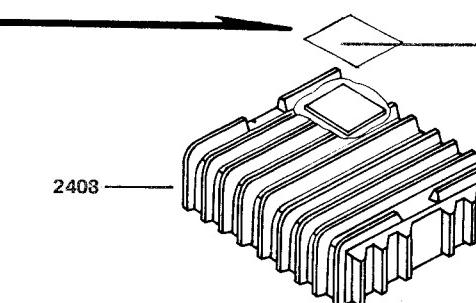
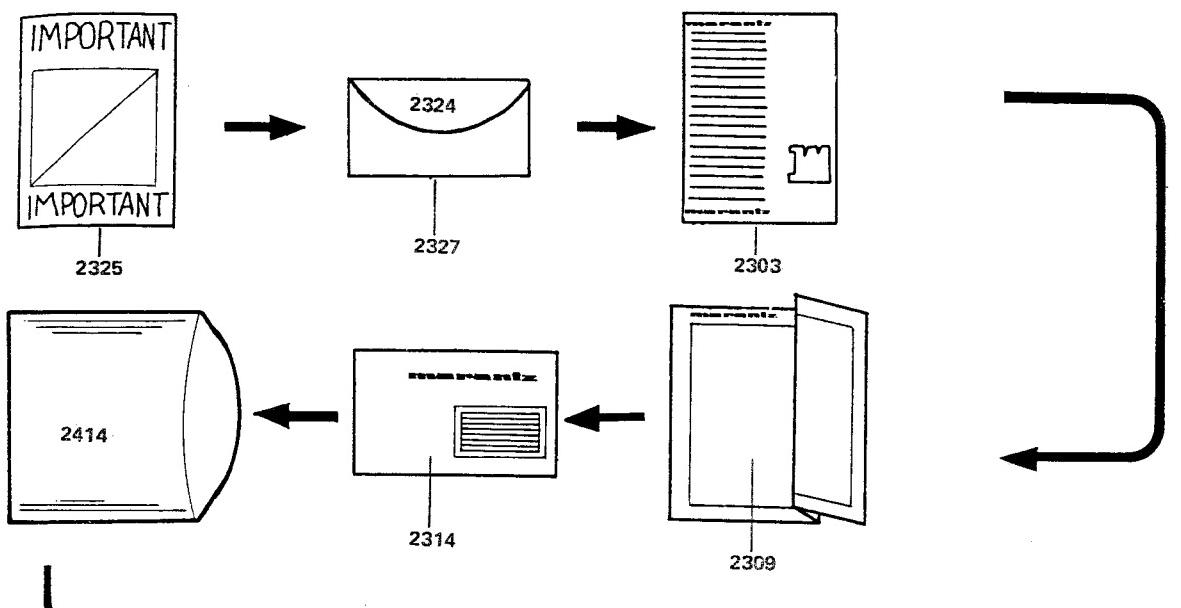
AM TUNER SECTION

IHF Usable Sensitivity	25 μV
Distortion (THD), 30% Modulation	0.7%
Signal-to-Noise Ratio	49 dE
Frequency Response (±3 dB)	40 Hz to 2.3 kHz
Alternate Channel Selectivity	40 dE
Image Rejection	37 dE
Spurious Response Rejection	67 dE
I.F. Rejection	40 dE

GENERAL

Power Requirements	220 V ~, 50 Hz
(This unit can be converted by a qualified technician to operate on 110/120/240 V ~, 50/60 Hz)	
Power consumption at rated output, both channels operating (8 Ω loads)	95 Watt
Idling power (volume control at zero)	25 Watt
Dimensions	
Panel Width	17-3/8 inche
Panel Height	5-3/8 inche
Depth	11-1/2 inche
Weight	
Unit alone	23 lbs
Packed for shipment	29.6 lbs

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Figure 27 Packing